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Digitized with financial assistance from the
Government of Maharashtra
on 18 July, 2018

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3 +2&'+$, &+ X51@- ![6 &92-$ ' ' . $2($%&'(' . !"+ 8#, &,&J I/
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"D' * I 3 DE' H"2/4DG' IC #' +D/E #27' E323DE!' ' .. HDE!' 2#G' ' +D#E #E!' O6' /DH 3DG' H3Ed' .I/3"D/' H #^ 3 #IDG

@&' " 81,")&,' &'$!"&(')$" ")&' +&4&,$-' $'(' ,&+2&!" 4&' 1%+' #8' #'&?' $'(' 31" &+' *) !)' +)$--')$4&' @&&'' #,' +)$--' @&' !)$,.&(' 12#'' +"$"&+' '' ,&$(?' #'&?6' 3&@"+6' H##(+6' E$,&+6' &,!)$'(L&6')$""&-+6' #,' #")&,' 5&,+#'$-' +"$"&6' @?' 4 ,"1&' #8' ")&' +$ (' !" 2$++&(' '' ")&') ,"?B& .)")' &$,' #8' ")&' & .'' #8' +' +$ (' $>&+"?6' 8#,' .,$'" '.' $'' (' "#' +' $>&+"?' @?' $' $'(' $96' $'(' $-+#' ")&' +&4&,$-' 1%+' #8' #'&?' $'(' 31" &+' *) !)' @?' 4 ,"1&' #8' ")&' +$ (' ,&! "&(' !"6' 2$++&(' '' ")&') ,"?B& .)")' &$,' #8' ")&' & .'' '.' +' +$"' 7+"?6' 8#,' .,$'" '.' $'' (' "#' +' $>&+"?' @?' $' $'(' $96' *&,&' !)$,.&(' '' ,&+2&!" #8' $'?' 51@- !' 88 !&+' #,' %2-#?%&'"+6' #,' $'?' ''1 " &+6' 5&'+ #'+6' " 2&'(+6' #,' #")&,' $''1$-' 5$?%&'"+6' $'(' *) !)')$4&' @&&'' !#'" '1&(' $'(' $,&' '' 8#,!&' 1'" -' ")&' *&'"?B8 8")' 3$?' #8' ' '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B"),&&6' +)$--' @&' !#'" '1&(6' $'(' ,$ +&(6' -&4 &(6' !#--&!"&(6' $'(' 2$ (' 1'"#' +' 2,&+&'" $>&+"?' * ") '' ")&' 2$!&' #8' '&' &$,' 8,#%' ")&' +$ (' *&'"?B8 8")' 3$?' #8' ' '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B"),&&' P

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5$?%&'"+' *)$"&4&,6' *)&,&' ")&' +$%&' $,&' 2$?$@-&' #1" #8' ")&' 51@- !' E I H"' * I 3 DE'
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'=D4 E3D/' 3 ' OD']DC3' .'277' B #D6' C2 G' #3 ' 3"D' &^ H"D\ I D/' . /' 3"D' * I 3 DE' "D/DO6' 4/2#3DG

< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' ")&,&' +)$--' @&' 2,#4 (&(' $'(' :&2"' '' ")&' 88 !&' #8' ")&' 1("#,' #8' ")&' &!& 2"' #8' +' $>&+"?;+' 9!)&C1&,' $"' / * ' '&' ##:' #8' &. +"&,6' '' *) !)' $--' ")&' #'&?' ")$"' +)$--' @&' 2$ (' '"#' ")&' +$ (' 9!)&C1&,' 8#" ")&' +$ (' $"&+' $'(' 31" &+')&,&@?' .,$'"&(' #,' !#'" '1&(' #" 5&,+#'$-' +"$"&+6' $'(' #" 88 !&+6' $'(' %2-#?%&'"+#8' 5,#8 "6' 5&'+ #'+6' ''1 " &+6' $'(' " 2&'(+6' +)$--' @&' &'"&,&(' $'(' ,&. +"&,&(' 2," $'(' (+" '!" 8,#%' $--' #")&,' #' &+' 2$ (' $'(' 2$?$@-&' "#' +' $>&+"?7' $'(' +)$--' @&' !$,, &(' "#' ")&' #'+#- ($"&(' 1'(' #8' ")&' V' "&(' D ' . (#%' #8' ' ('$'('

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< ' '(' @&' "' 81,")&,' &'$!"&(')$"' ")&,&' +)$--' @&' 2,#4 (&(' $'(' :&2"' '' ")&' 88 !&' #8' ")&' 1("#,' #8' ")&' &!& 2"' #8' +' $>&+"?;+' 9!)&C1&,' $"' / * ' '&' ##:' #8' &. +"&,6' '' *) !)' $--' ")&' #'&?' ")$"' +)$--' @&' 2$ (' '"#' ")&' +$ (' 9!)&C1&,' "<#%' +#' %1!)' #8' ")&' +$ (' $"&+' $'(' 31" &+')&,&@?' .,$'"&(' #'' 1.$,' $+' +)$--' $, +&' $'(' @&' 2$?$@-&' '' ' (' +)$--' @&' &'"&,&(' $'(' ,&. +"&,&(' 2," $'(' (+" '!" 8,#%' $--' #")&,' #' &+' 2$ (' $'(' 2$?$@-&' "#' +' $>&+"?' $'(' " +)$--' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' #8' ")&' ,&$+1,?' #8' ")&' V' "&(' D ' . (#%' #8' ' ('$'(' '"#' ++1&' $'(' $22-?' ")&' +$%&' 8,#%' %&' "#' %&' "#' +1!)' &,4 !&+' $+' +)$--' ")&' ')$4&' @&&' 4#"&(' @?' ")&' #%%#'+' #8' ")&' V' "&(' D ' . (#%' #8' ' ('$'(' ' '' ")' +' 2,&+&'" &++ #'' #8' 5$,- $%&'" ' $'(' +#' %1!)' #8' ")&' +$ (' 31" &+' #'' 1.$,' $+' +)$--' $, +&' $'(' @&' 2$?$@-&' >' ' +)$--' @&' 2$ (' '"#' ")&' &!& 2"' #8' ")&' 9!)&C1&,' ")&,&6' $'(' +)1-' @&' !$,, &(' "#' ")&' #'+#- ($"&(' 1'(' #8' ")&' V' "&(' D ' . (#%' #8' ' (' $'(' ,

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ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(6ʿ)$"ʿ "ʿ +)$--ʿ @&ʿ -$'781-ʿ 8#,ʿ ")&ʿ +$ (ʿ 77Eʿ 3 ʿODʿ
#%% ++ #'&,+ʿ #8ʿ ")&ʿ ,&$+1,?6ʿ $'Qʿ ")&?ʿ $,&ʿ)&,&@?ʿ $1")#, L&(ʿ $'(ʿ 2-$!&($7
&%2#*&,&(6ʿ "#ʿ !$1+&ʿ +1!)ʿ --+ʿ $+ʿ +)$--ʿ @&ʿ 2,&2$,&(ʿ@?ʿ 4 ,"1&ʿ #8ʿ ") +ʿ 9!)&C1&,B
!"ʿ "#ʿ @&ʿ 2-$!&(ʿ $+ʿ +#ʿ %1!)ʿ $+)ʿ 'ʿ ")&ʿ ,&+2&!" 4&ʿ 88 !&+ʿ #8ʿ ")&ʿ
&--7+ʿ #8ʿ ")&ʿ +$ (ʿ &!& 2"ʿ #8ʿ 9!)&C1&,ʿ &$!)ʿ $'(ʿ &4&,?ʿ #8ʿ *) !)ʿ
&--&,+ʿ +)$--ʿ @&ʿ +&4&,$--?ʿ !)$,.&(ʿ * ")ʿ $ 5,#2#," #'ʿ #8ʿ ")&ʿ +$ (ʿ --+
*) !)ʿ +)$--ʿ @&ʿ +#ʿ 2-$!&(ʿ 'ʿ) +ʿ 88 !&ʿ ,&+2&!" 4&-?6ʿ $'?ʿ $*ʿ #,ʿ V+$.&ʿ
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$+)ʿ $!!#,('.ʿ "#ʿ ")&ʿ #1,+&ʿ #8ʿ ")&ʿ 9!)&C1&,ʿ $"ʿ / * ʿ $'(ʿ H 0 0 #ʿZ 3"ʿ
+)$--ʿ @&ʿ "$:&'ʿ $'(ʿ &+"&&%&(ʿ $+ʿ +#ʿ %2!)ʿ 'ʿ 2$,"ʿ #8ʿ ")&ʿ &%$ '+ʿ 'ʿ 3"D/B #DEʿ
,&$-ʿ #'&?ʿ *)&,&*")ʿ &$!)ʿ #8ʿ ")&ʿ +$ (ʿ &--&,+ʿ +)$--ʿ 8,#%ʿ %&ʿ "#ʿ
%&ʿ +"$'(ʿ !)$,.&(6Bʿ 'ʿ !#%%#'ʿ * ")ʿ #")&,ʿ ")&ʿ #' &+ʿ 'ʿ ")&ʿ +$ (
9!)&C1&,6ʿ $'?ʿ $*ʿ #,ʿV+$.&ʿ "#ʿ ")&ʿ !#'",$,?ʿ '#"* ")+"$'('.ʿ ʿ $'(
"ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ #8ʿ ")&ʿ ,&$+1,?ʿ "#ʿ ++1&ʿ
$'(ʿ $2_i?ʿ ")&ʿ +$%&ʿ 8,#%ʿ %&ʿ "#ʿ %&ʿ "#ʿ +1!)ʿ &,4 !&+ʿ $+ʿ +)$--ʿ
")&'ʿ)$4&ʿ @&&'ʿ 4#"&(ʿ @?ʿ ")&ʿ #%%#'+ʿ #8ʿ")&ʿ V' "&(ʿ D '.(#%ʿ #8
ʿ(ʿ$'(ʿ ʿ ") +ʿ 2,&+&'"ʿ &++ #'ʿ #8ʿ 5$,- $%&'"

&H"D\ID/ 77E 3 ʿ OD H"2/4DG # 3"D * I3 DE 4/2#3DG O6 3" E H3

< ʿ 5,#4 (&(ʿ $-*$?+6 $'(ʿ @& "81,")&,ʿ &'$!"&(6)$" ")& 9!)&N C1&,ʿ --+ "# @& %$(& 8#,") @? 4 ,"1& #8 ") + !"6 "#.&")&,ʿ * ") ")& '"&,&+" ")$" %$? @&!#%& (1& ")&,&#'6 $'(ʿ ")&)$,.&+ #8 &9!)$'. '.ʿ $'(ʿ ! ,!1-$" '.ʿ ")& +$%&6 +)$-- @& $'(ʿ ")& +$%& $,&)&,&@? %$(& !)$,.&$@-& $'(ʿ !)$,.&(ʿ 12#$ ")& $"&+6 31" &+6 $'(ʿ ++&++%&'"+ #' 1.$] .,$>$7&(ʿ @? ") + !" ʿ $'(ʿ " +)$-- @& -$*81- 8#,ʿ ")& +$ (ʿ #%% ++ #'&,+ #8 ")& ,&$+1,? $'(ʿ ")&? $,&)&,&@? $1")#, L&(ʿ 8,#% %& "# %` "# (,&!" "# @& ++1&(ʿ "# ")& +$ (ʿ 5$?%$+"&,+6 @? *$? #8 %2,&+" $'(ʿ 12#" !!#1'"6 +1!) 1%+ #8 #'&? $'(ʿ $" +1!) 5&, #(+ $+ ")& +$ (ʿ #%% ++ #'&,+ +)$-- ") '.ʿ '&!&++$,? 8#,ʿ #,ʿ "#*$,(+ 2$? >.ʿ #88 $'(ʿ (+!)$,. '.ʿ ")& 9!)&C1&,ʿ --+ *) !) +)$--)$4& @&&' %$(& 8#,") @? 4 ,"1& #8 ") + !"6 #,ʿ $'? #8 ")&%6 $'(ʿ 8#,ʿ $'(ʿ "#*$,(+ 2$? '.ʿ ")& '"&,&+" "# @&!#%& (1& #" ")& +$ (ʿ --+6 $'(ʿ 8#,ʿ $'(ʿ "#*$,(+)$,.& #8 &9!)$'. '.ʿ $'(ʿ ! !1-$" '.ʿ ")& +$%& --+ #,ʿ $'? #8 ")&%

HH I#3 .ʿ &H"D\ID/ 77E 3 ʿ OD 32]D#

< ʿ '(ʿ @& " 81,")&,ʿ &'$!"&(ʿ)$" #' ")& 8") 3$? #8 & ʿ '& ")#1+$'(ʿ & .)")1'(,&(ʿ $'(ʿ ") ,"?B8#1,6 #,ʿ * ") ' &' 3$?+ $8"&,6 ")& +$ (ʿ #%% ++ #'&,+ #8 ")& ,&$+1,? +)$-- !$1+& $",1& $'(ʿ 2&,8&!" !!#1'" ' E, " '.ʿ "# @& "$:&'$'(ʿ $""&+"&(ʿ @? ")& 2,#2&, 88 !&,+ #8 ")& %#1' #8 $-- 9!)&C1&,ʿ --+ ")$" +)$--)$4& @&&' ++1&(ʿ @? 4 ,"1& 8 ") + !"6 $'(ʿ)#* %1!) ")&,&#8 +)$-- @&8#,& ")$" %&)$4& @&&' 2$ (ʿ #88 #,ʿ (+!)$,.&(6 $'(ʿ)#* %1!) ")&,&#8 +)$-- ")&' ,&%$ ' 1'(+!)$,.&(

B #D6 GID # &H"D\ID/ 77E 3 ʿ OD ")&AA'&9 GE ʿ

< ʿ '(ʿ @& " 81,")&,ʿ &'$!"&(6)$" ")& #' &+ +# ,&' $ ' '.ʿ 1'+$" +8 &(ʿ #,ʿ '#" (+!)$,.&(6 * ") ")& '"&,&+" (1& #,ʿ "# .,#* (1& ")&,&#'6 $'(ʿ ")&)$,.&+ #8 &9!)$'. '.ʿ $'(ʿ ! ,!1-$" '.ʿ ")& +$%&6 +$" +8 &(ʿ #1' #8 ")& '&9" (ʿ #,ʿ (+ "# @& .,$'"&(' 5$,- $%&' $8"&,ʿ ")& +$ (ʿ 8") 3$? #8 & ʿ '& ")#1+$'(ʿ & .)")1'(,&(ʿ $'(ʿ ") ,"?B8#1,

I/C7IE B # DE 3 ʿ OD [,# ($"&(> 1'(ʿ

< ʿ '(ʿ @& " 81,")&,ʿ &'$!"&(ʿ)$" ")& 1,2-1+ #8 ")& #' &+ $, + '.ʿ 8,#% ")& $"&+6 31" &+6 $'(ʿ ++&++%&'"+ #' 1.$,ʿ .,$'"&(ʿ %2#+&(ʿ @? ") + !"6 $8"&,ʿ 2$? '.ʿ #88 $'(ʿ +$" +8? '.ʿ $-- ")& 9!)&C1&,ʿ --+ ++1&(ʿ @? 4 ,"1& #8 ") + !" "#.&")&,ʿ * ") ")& '"&,&+" ")$" %$? @&!#%& (1& ")&,&#'6 $'(ʿ ")&)$,.&+ #8 &9!)$'.N '.ʿ $'(ʿ ! ,!1-$" '.ʿ ")& +$%&6 +)$--6 $+ $ 1,2-1+ #8 $'? +1!) #' &+ ,&+2&!" 4&-? +)$-- @& 2$ (ʿ '"# ")& &!& 2" #8 ")& 9!)&C1&,ʿ $" / = * ʿ@& !$,, &("# $'(ʿ %$(& 5$," #8 ")& #'+#- ($"&(ʿ 1'(ʿ #8 ")& V' "&(ʿ D '.(#% #8 ʿ(ʿ$'(

7D /D2EI/6 3 ʿ 277 Z 3"D #DHDEE2/6 ("2/4DE .ʿ 02] #4 . /3" #DZ &H"D^ \ID/ 77E 5

< ʿ '(ʿ @& " &'$!"&(6)$" " +)$-- $'(ʿ %$? @& -$*81- 8#,ʿ ")& #%% ++ #'&,+ #8 + $>&+"?;+ ,&$+1,? #,ʿ $'?),&& #,ʿ %#,& #8 ")&%6 8#,ʿ ")& %& @& '.6 $'(ʿ ")&? $,&)&,&@? $1")#, L&(ʿ $'(ʿ &%N 2#*&,&(6 "# 2$? $'(ʿ $--#* #,ʿ !$1+& "# @& 2$ ($'(ʿ $--#*&(6 #1" #8 ")& #' &+ "# $, +&+ $'(ʿ 31" &+ #' 1.$,ʿ)&,&@? .,$'"&(6 #,ʿ #8 #,ʿ 8,#% ")& +$ (ʿ $"&+ $'(ʿ 31" &+ #' 1.$,ʿ #'+#- ($"&(ʿ 1'(6 8"# $ '$ ʿ "# %&6 ")& '&!&++$,?)$,.&+ #8 %$: '.ʿ 8#,") ")& 9!)&C1&,ʿ --+)&,&@? $1")#, L&(ʿ "# @& %$(& 8#,")6 $'(ʿ +1!) #")&,ʿ)$,.&+ $+ +)$-- @& '&!&++$, -? ' ! (&' ' #,ʿ 8#,ʿ ")& 9&!1" #' #8 ") + $!"ʿ $'? 5$," ")&,&#86 ,&-$" '. "# ")& +$ (ʿ --+ ʿ $'?") '.ʿ)&,& ' !#'"$ '&("# ")& !#'",$,? '#"* ")+"$'('.

L B ʿ ʿ (2C ʿ 9

ʿ 5,#4 (&(ʿ $-*$?+6ʿ $'(ʿ @&ʿ "ʿ &'$!"&(6ʿ)$"ʿ *)$"&4&,ʿ #' &+ +)$--ʿ @&ʿ ++1&(ʿ #1"ʿ #8ʿ ")&ʿ +$ (ʿ #'+#- ($"&(ʿ 1'(ʿ +)$--ʿ 8,#%ʿ %&ʿ "#ʿ %&ʿ @&ʿ ,&2-$!&(ʿ @?ʿ $2(ʿ #1"ʿ #8ʿ ")&ʿ 8 ,+"ʿ 122- &+ʿ "#ʿ @&ʿ ")&'Bʿ $8"&,ʿ .,$'"&(ʿ @?ʿ 5$,- $%&'"ʿ $'?ʿ ") '.ʿ)&,& 'ʿ !#'"$ '&(ʿ "#ʿ ")&ʿ !#'",$,?ʿ '#"* ")+"$'('.ʿ

B #D6 EEIDGʿ 3 ʿODʿ/D^ C72HDGʿ I3ʿ .ʿ3"Dʿ. /E3ʿ ICC7 DE

ʿ '(ʿ @&ʿ "ʿ &'$!"&(6ʿ)$"ʿ ") +ʿ !"ʿ %$?ʿ @&ʿ $-"&,&(6ʿ $%&'(&(6ʿ #,ʿ ,&2&$-&(ʿ @?ʿ $'?ʿ !"#,ʿ !"+ʿ "#ʿ @&ʿ 2$++&(ʿ 'ʿ ") +ʿ 2,&+&'"ʿ &++ #'ʿ #8ʿ 5$,- $%&'"

H3ʿ O26ʿODʿ 273D/DGʿ3" Eʿ DEE #

3] 5, '"&(ʿ O6ʿ ʿ ʿ 2#Gʿ ʿ ʿ
5, '"&,+ʿ "jʿ ")&ʿ D '.;+ʿ%#+"ʿ 9!&--&'"ʿ $>&+"?ʿ

%) '' = '

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7 H3. / 3"D!% D..DD3I27 ICC/DEE ' .' 7 H27
* E3I/O2#HDE 2#G G2#4D/ IE EE H]3 #E #
, c G %# ' Q S

@ ' ")&,7 + '#*' 2,&4$-&'" '' !&,"$ '' 5$,"+' #8'
' ' ($'.8&,# ' #'+2 ,$!? $.$ '+" ")&' .)"+' #8'
5,#2&,"? $'(' ")&' (% ' +",$" #'' #8' ")&' $*+6 *) !)6)$+'
@&&'' %$' 8&+"&(6 $+' *&--' @?' 2&'' $'(' ($, '.' 1",$.&+' $.$ '+" ")&'
5&,+#'+' $'(' 5,#2&,"? #8' +' $>&+"?;+' 2&$!&$@-&' 1@>&!"+6 $+' @?'
"1%1-"1#1+' #4&%&'"+' #8' -$,.&' #(&+' #8' &4 -B(+2#+&(' 5&,+#'+A6
*)#')$4&6 @?' ")&,' 1%@&,+' $'(' < #-&'!&6 !,&$"&(' +1!)6 .&'&,$-'
-$,%' $'(' '" % ($" #'' $+' %$"&, $--?' "#' %2&(&' ")&' (1&' #1,+&' #8'
21@- !' R1+" !&6 $'(' "#' 8,1+",$"&' ")&' #,('$,?' #(&$#8' , % '$-' 5,#+&N
!1" #''] '(' *)&,&$+' (4&,+' &&" '.+' $'(' ++&%@- &+6 '!#'+ +"&'"
* ")' ")&' 21@- !' 5&$!&' $'(' $8&"?A' $'(' * ")' ")&' 9&,! +&' #8' ,&.1-$,'
H#4&,'%&'"6)$4&' 8#,' +#%&' %&' 2$+" @&&'')&-(' '' U '('
*)&,&$+' ")&' $*+' '#*' '' 8#,!&' '' ")$" 5$," #8' ")&' V ' "&(' D '.(#%'
)$4&' @&&'' 8#1'(' '$(&C1$"&' "#' ")&' 2,#%2" $'(' & 8&!"1$-' 122,&+N
+#'' #8' ")&' +$ (' +!) &8&O' $'(' ")&' '"&,2#+ "#'' #8' 5$,- $%&'" +'
'&!&++$,?' 8#,' ")&' 51,2#+&' #8')&!: '.' ")&6 81,")&,' 5,#.,&++' #8' ")&'
+$%&,' @&' ' ")&,&8#,&' &'$!"&(' @?' ")&' D '.;+' %#+" 9!&--&'" $>&+"?6
@?' $'(' * ")' ")&' (4 !&' $'(' #'+&'" #8' ")&' #,(+' 2 , "1$-' $'(' '
&%2#,-66'(' #,$%#, +6 '' ") 2,&+&'" 5$,- $%&'" $++&%@-&(6 $'('
@?' ")&' 1")#, "?' A#8 ")&' +$%&A')$" " +)$--' $'(' %$?' @&' -$*81-' 8#,' /G' DI '
")&' #,(' &1"&'$'"' #8' #")&,') &8' H#4&,'#,'#,'.#4&,'#,+' '
6 $"

C/ " O 3' /'
E I CC/DEE' 2#6'
B DD3 #4'
GDD O DG' O6'
" O' 3 ' OD'
G2#4D/ I E' 3 '
3"D' C I O H'
2.D36

$"' $'?' %&' $8"&,' ")&' 2$++ '.' #8' ") +' !"6' $'(' 8,#',' %&' "#' %&' (1, '.'")&' #'" '1$'!&' ")&,&#86' $+' !!$+ #'' %$?' ,&C1 ,&6' @?') +' #,' ")& ,' ,(&,' '' E, " '.6' #8' 7) !)' 21@- !' #" !&' +)$--' @&' . 4&'6' "#' 2,#) @ '' #,' +122,&++' ")&' %&&" '.' #8' $'?' ++#! $" #'6' ++&%@-?6' #,' #(?' #8' 5&,+#'+' '' & <B ' *) !)')&' #,' ")&?' +)$--' (&&%' "#' @&' ($'.&,#1+' "#' ")&' 21@- !' 5&$!&' #,' $8&"?6' #,' '!#'+ +"&'' * ")' ")&' (1&' (% ' +",$" #'' #8' ")&' $*6' $'(' @?' ")&' +$%&' #,' $'?' #")&,' ,(&,' $-+#' "#' 2,#) @ '' &4&,?' #,' $'?' $(>#1,'&(6' ,&'&*&(6' #,' #")&,* +&' !#'N " '1&(' &&" '.' #8")&' +$%&6' #,' #8' $'?' 5$,'' ")&,&#86' 1'(&,' $'?' $%&6'

B DD3 #4E' E '
C/ " O 3DG'
E"27' OD'
I #72Z . I 7!'
2#G!' 2.3D/'
) 3 HD' 4 FD# '
DFD/6' +D/E #'
C/DED#3' 4 I 736'
.' B EGD^
O D2# /

5,&"&9"6') 8"6' #,' 3&4 !&' *)$"+#&4&,' $'(' ")$" &4&,?' &&" '.' #8' $'?' ++#! $" #'6' ++&%@-?6' #,' #(?' #8' 5&,+#'+6' ")&' %&&" '.' *)&,&#8' +)$--' @&' +#' 2,#) @ "&(' #,' +122,&++&(' $+' $8#,&+$ (6' $'(' &4&,?' 2#+"2#'&(6' $(N >#1,'&(6' ,&'&*&(6' #,' #")&% +&' !#'" '1&(' &&" '.' ")&,&#86' 1'(&,' $'?A' $'-&6' 5,&"&9"6') 8"6' #,' 3&4 !&' *)$"+#&4&,6' +)$--' @&' $'(' @&' (&&%&(' $'' 1'-$*81-' ++&%@-?6' $'(' $8"&,' #" !&')$+' @&&'' . 4&'' #8' +1!)' &&" '.')$4 '.' @&&'' 2,#) @ "&(' #,' +122,&++&(' $+' $8#,&+$ (6' &4&,?' 5&,+#'' 2,&+&'' $"' ")&' +$%&' +)$--' @&' (&&%&(' .1 -"?' #8' $' +(&N %&$'#,6' $'(' &4&,?' +1!)' 88&'!&6' *)&")&,' !#%% ""&(' * ") '' $'?' 3 +", !'' 2,#!-$ %&(' '' 21,+1$'!&' #8' ") +' !"6' #,' &-+&*)&,&' '' ' +)$--' @&' ", &(' $'(' 21' +)&(' $!!#,('.' "#' ")&' #1,+&' #8' ")&' #%%#'' $*' 6

Z ' , I E3 HDE'
O 26' D#3D/' O6'
A /HD' 2#6'
+72HD' Z "D/D'
2' C/ " O 3DG'
EED O O76' E'
"D7G!' 2#G'
/D2G' 2') 3 HD'
3 ' 3"D' +D/^
E #E' 3 ' G E^
CD/ED

' '(' @&' '' &'$!"&(6')$"' $'?' *#' #,' %#,&' R1+" !&+' #8' ")&' 5&$!&' +)$--' $'(' %$?' 2,#!&&(6' * ")' +1!)' ++ +"$'!&' $+' +)$--' @&' '&!&++$,?6' "#' $'?' #1+8&6' ##%6' #,' 5-$!&' *)$"&4&,6' *)&,&' $'?' +1!)' R1+" !&+' +)$--')$4&' .##(' &$+#''"#' @&- &4&6' 8,#%' '8#,%$" #'' #'' $")6' ")$"' $'?' ++#! $" #'6' ++&%@-?6' #,' &&" '.' #8' 5&,+#'+6' *)&,&#8' ")&' %&&" '.' +)$--')$4&' @&&'' +#' 2,#) @ "&(6' +')&-(6' $'(' +)$--' $'(' %$?6' '' !$+&' ")&?' +)$--' @&' ,&81+&(' (% ++ #'6' &'"&,' ")&,& '' @?' #,!&' > $'(' '&' #8' ")&' +$ ('R1+" !&+6' #,' +#%&' #")&,' 5&,+#'' @?' @ +' ,(&,6' +)$--' ")&'' $'(' ")&,&' '#" 8?' ")&' ,(&,' 2,#) @ " '.' ")&' &&" '.' #8' +1!)' ++#! $N " #'6' ++&%@-?6' #,' #(?' #8' 5& + '+6' $'(' ,&$(' #,' ,&2&$"' $-#1(' "#' ")&' 5&,+#'+' +#' $++&%@-&(' $' #%%$'('#,' #" !&' " ' (+2&,+&6' '' ")&' E#,(+' #,' "#' ")&' 88&!' 8#--#* '.' > X")$"' +' "#' +$?6'[

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Ů 7 V ' #4&,& .'' #,(' ")&' D '.' !)$,.&")' $'(' !#%%$'(&")' $--' Ů 5&,+#'+' @& '.' $++&%@-&(' %%&($"&-?' "#' (+2&,+&' $'(' 2&$!&$@-?' Ů "#' (&2$,"6' 12#'' ")&' 5$ '+' !#'"$ '&(' '' ")&' !'' %$(&' '' ")&') ,(' Ů &$,' #8' ")&' & .'' #8' D '.' / *' ")&' #1,")6' 8#,' ")&' %#,&' Ů &88&!"1$-' 122,&++ #'' #8' -#!$-' 3 +"1,@$'!&+' $"' (' ($'.&,#1+' ++#B' Ů ! $" #'+' ''

+D/E #E' # 3'
G ECD/E #4'
Z 3" #' 2'
Y I 2/3D/' .' 2#
> I /!GDD O DG'
4 I 736' .' 2'
B EGD O D2#^
/!' 2#G' O 26^
OD' 2CC/D^
"D#GDG' 3"D#'
/' 2.3D/Z2/GE

'(' '' !$+&' $'?' #8' ")&' 5&,+#'+' +#' %&"' #,' B$++&%@-&(' "#.&")&,' +)$--' '#'' (+2&,+&' $'(' (&2$,'' * ") '' ")&' 2$!&' #8' '&' T1$,"&,' #8' $'' #1,' 8,#%' ")&' %&' #8' +1!)' #" !&' #,' #%%$'(' @& '.' . 4&'6' ")&?' +)$--' ,&+2&!" 4&-?' @&' (&&%&(' .1 -"?' #8' $' +(&%&$'#,6' $'(' ''+)$--' @&' -$*81-' 8#,' ")&' +$%&' #,' $'?' *#' #8' ")&' +$%&' R1+" !&+' #8' ")&' 5&$!&' ")&'' 2,&+&'' "#' !$1+&' ")&' 5&,+#'' #,' 5&,+#'+' +#' ,&81+ '.' #,' '&.-&!" '.' "#' (+2&,+&' #,' (&2$,'' "#' @&' $22,&)&'(&(' $'(' @,#1.)" @&8#,&' ")&%6' #,' '' !$+&' +1!)' 5&,+#'' #,' 5&,+#'+' !$' '#' ")&' @&' $22,&)&'(&(6' +1!)' 5&,+#'' #,' 5&,+#'+' %$?' @&' $8"&,*$,(+' $22,&)&'(&(' @?' $' E$,,$'' 8#,' ")$"' 51,2#+&' "#' @&' .,$'"&(' @?' $'?' R1+" !&' #8' ")&' 5&$!&' * ") '' *)#+&' R1, +(!" #'' +1!)' 1'-$*81-' ++#! $" #'6' ++&%@-?6' #,' &&" '.' +)$--')$4&' @&&'')&-(6' $'(' +1!)' 88&'(&,' #,' 88&'(&,+' +)$--' ")&,&12#' @&'

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$ B ʻ ʻ (2C a

2,#!&&(&(ʻ $.$ '+'' 8#,ʻ +1!)ʻ 88&'!&ʻ $!!#,('.ʻ "#ʻ ")&ʻ #1,+&ʻ #8ʻ ")&ʻ #%%#'ʻ $*

ʻ '(ʻ @&ʻ '' &'$!"&(6ʻ)$'' *)&,&ʻ $'?ʻ 5&,+#'ʻ +)$--ʻ @&ʻ 2,#Bʻ 5&,+#'+ʻ 2,#N +&!1"&(ʻ @?ʻ '(!"%&''' 8#,ʻ $'?ʻ +(&%&$'#,ʻ !#' % ""&(ʻ $.$ '+'' $'?ʻ #8ʻ ")&ʻ 5,#4 + #'+ʻ #8ʻ ") +ʻ !"6ʻ +1!)ʻ 5&,+#'ʻ +)$--ʻ 2-&$(ʻ "#ʻ +1!)ʻ '(!"Bʻ %&''' 8#,") * ")6ʻ +#ʻ ")$" ")&ʻ , $-ʻ ")&,&#8ʻ %$?ʻ '#'' @&ʻ (&-$?&(ʻ #,ʻ . /3" Z 3"!ʻ 2#+"2#'&(ʻ "#ʻ$'?ʻ +1@+&C1&''' &,%ʻ #,ʻ &++ #'ʻ #8ʻ ")&ʻ #1,'' 'ʻ *) !)ʻ +1!)ʻ , $-ʻ +ʻ "#ʻ "$:&ʻ 2-$!&

<ʻ '(ʻ @&ʻ ''&'$!"&(ʻ)$'' '' +)$--ʻ $'(ʻ %$?ʻ @&ʻ -$*81-ʻ 8#,ʻ ")&ʻ "Dʻ /Gʻ #,(ʻ &1"&'$''' #,ʻ #")&,ʻ) &8ʻ H#4&,'#,ʻ #,ʻ H#4&,'#,+ʻ ʻ D I 3D#2#3ʻ * ")ʻ ")&ʻ (4 !&ʻ #8ʻ +ʻ $>&+"?;+ʻ 5, 4?ʻ #1'! -ʻ *2 ʻ $'' $'?ʻ 026ʻ 7E I Dʻ "3Dʻ %&ʻ $8"&,ʻ ")&ʻ 2$++ '.ʻ #8ʻ ") +ʻ !"6ʻ $'(ʻ 8,#%ʻ %&ʻ "#ʻ %&ʻ (1, '.ʻ +/ H72/3 23 '# ")&ʻ #'" '1$'!&ʻ ")&,&#86ʻ $+ʻ !!$+ #'ʻ %$?ʻ ,&C1 ,&66ʻ "#ʻ ++1&ʻ) +ʻ #,ʻ GDH72/ #4ʻ EO6ʻ ")& ,ʻ 5,#!-$%$" #'ʻ (&!-$, '.ʻ $'?ʻ #1'"?6ʻ #1'"?ʻ #8ʻ $ʻ "?6ʻ #,ʻ (I#36!ʻ Hʻ #1'"?ʻ #8ʻ $ʻ #*'ʻ 'ʻ ʻ#,ʻ $'?ʻ 5#," #'ʻ ")&,&#8ʻ ,&+2&!" 4&-?6ʻ 3 ʻODʻ E ʻ G E^ "#ʻ @&ʻ 'ʻ +1!)ʻ $ʻ "$"&ʻ #8ʻ 3 +"1,@$'!&ʻ $'(ʻ '+1@#,('$" #'ʻ $+ʻ "#ʻ 3 I /ODGʻ 2Eʻ 3 ʻ ,&C1 ,&ʻ ")&ʻ 22- !$" #'ʻ #8ʻ ")&ʻ 5,#4 + #'+ʻ #8ʻ ") +ʻ !"ʻ $'(ʻ +1!)ʻ /D\# /Dʻ 3"Dʻ #1'"?6ʻ #1'"?ʻ #8ʻ $ʻ "?6ʻ #,ʻ #1'"?ʻ #8ʻ $ʻ #*'6ʻ #,ʻ $'?ʻ 5#," #'ʻ CC7 H23 #ʻ ")&,&#8ʻ,&+2&!" 4&-?6ʻ +)$--6ʻ 8,#%ʻ ")&ʻ 51@- !$" #'ʻ #8ʻ+1!)ʻ 2,#!-$%$" #'ʻ .ʻ3" Eʻ 2ZN $+ʻ)&,& 'B$8"&,ʻ %&'" #'&(6ʻ @&ʻ (&&%&(ʻ $'(ʻ "$:&'ʻ "#ʻ @&ʻ $ʻ 2,#!-$ %&(ʻ 2#Gʻ E I H'' 3 +", !'' E ") ' ")&ʻ &$ʻ '.ʻ 8ʻ") +ʻ !"] 5,#4 (&(ʻ $-*$?+6ʻ ")$'' '' (I#36ʻ EO2>ʻ +)$--ʻ '#'' @&ʻ -$*81-ʻ 8@,ʻ ")&ʻ #,(ʻ &1"&'$''' #,ʻ #")&,ʻ) &8ʻ H#4&,'#,ʻ ODʻ GDD O DGʻ 2ʻ #,ʻ H#4&,'#,+ʻ #8ʻ ʻ "&ʻ $22-?ʻ ")&ʻ 5,#4 + #'+ʻ #8ʻ ") +ʻ !'' "#ʻ $'?ʻ C/ H72 ODGʻ #1'"?ʻ #,ʻ 3 +", !'' %&,&-?ʻ @&!$1+&ʻ ")&+ʻ +)$--ʻ '#'')$4&ʻ @&&'ʻ 2$ (ʻ 'ʻ * E3/ H3 +1!)ʻ #1'"?ʻ #,ʻ 3 +", !"

<ʻ '(ʻ @&ʻ '' &'$!"&(ʻ)$'' &4&,?ʻ +1!)ʻ 5,#!-$%$" #'ʻ +)$--ʻ E$,ʻ I H'' H72 ʻ ")&ʻ ')$@ "$''+ʻ #8ʻ &4&,?ʻ +1!)ʻ #1'"?6ʻ #1'"?ʻ #8ʻ $ʻ "?6ʻ #1'"?ʻ O 23 #ʻ E"27ʻ #8ʻ $ʻ #*'6ʻ #,ʻ 5$,'' ")&,&#86ʻ $+ʻ +)$--ʻ @&ʻ +#ʻ 2,#!-$ %&(6ʻ "#ʻ $@+"$ 'ʻ Z2/#ʻ 3"Dʻ # ʻ 8,#%ʻ $--ʻ +&("#1+ʻ $'(ʻ #")&,ʻK1'-$*81-ʻ ++&%@- &+6ʻ 5,#!&++ #'+6ʻ "2O 32#3Eʻ 3 ʻ #'8&(&,$! &+6ʻ &&" '.+6ʻ $'(ʻ ++#! $" #'+6ʻ $'(ʻ "#ʻ @&ʻ $'(ʻ ,&%$ 'ʻ 2OE32 #ʻ ./ 5C2 * ") 'ʻ ")& ,ʻ ,&+2&!" 4&ʻ $@ "$" #'+ʻ $'' $--ʻ #1,+ʻ @&"*&&'ʻ 1'+&" I#72Z. I7ʻ E^ $'(ʻ 1', +&ʻ 8,#%ʻ $'(ʻ $8"&,ʻ +1!)ʻ 3$?ʻ $+ʻ +)$--ʻ @&ʻ '$%&(ʻ ")&,& 'ʻ 8#,ʻ EDOO7 DE!ʻ D ")$'' 51,2#+&

<ʻ '(ʻ @&ʻ '' &'$!"&(6ʻ)$'' &4&,?ʻ #1'"?6ʻ #1'"?ʻ #8ʻ $ʻ "?6ʻ FD/6ʻ (I#^ #1'"?ʻ#8ʻ$ʻ #*'6ʻ#,ʻ5$,'' ")&,&#8ʻ,&+2&!" 4&-?6ʻ +#ʻ 2,#!-$ %&(6ʻ+)$--ʻ@&ʻ 36!ʻ H ʻE ʻ !#'+ (&,&(ʻ "#ʻ $--ʻ '"&''+ʻ$'(ʻ51,2#+&+ʻ $+ʻ $ʻ 2,#!-$ %&(ʻ 3 +", !'' * ") 'ʻ C/ H72 ODGʻ ") +ʻ !'' 8,#%ʻ ")&ʻ 3$?ʻ $8"&,ʻ")$'' #'ʻ *) !)ʻ +1!)ʻ 5,#!-$%$" #'ʻ +)$--ʻ @&ʻ E"27ʻ ODʻ2ʻ 21@- +)&(ʻ * ") 'ʻ +1!)ʻ 2,#!-$ %&(ʻ 3 +", !"6ʻ @?ʻ $88 9 '.ʻ $ʻ #2?ʻ ")&,&#8ʻ * E3/ H3 @ 3" ʻ #'ʻ +#%&ʻ #'+2 !1#1+ʻ 5-$!&ʻ 'ʻ &$!)ʻ $,#'?ʻ * ") 'ʻ ")&ʻ 3 +", !"6ʻ 8ʻ ")&ʻ # 3"Dʻ H3ʻ +$%&ʻ @&ʻ $ʻ #1'"?ʻ $''-$,.&ʻ #,ʻ 5$,'' #8ʻ +1!@ʻ #1'"?6ʻ #,ʻ #'ʻ +#%&ʻ !#'N ./ Oʻ 3"Dʻ +2 !1#1+ʻ 5-$!&ʻ * ") 'ʻ $ʻ #1'"?ʻ #8ʻ $ʻ "?ʻ #,ʻ #1'"?ʻ #8ʻ $ʻ #*'ʻ C I O7 E" #4ʻ .ʻ * ") 'ʻ+1!)ʻ 3 +", !"6ʻ 8ʻ ")&ʻ +$%&ʻ @&ʻ $ʻ #1'"?ʻ#8ʻ$ʻ "?ʻ #,ʻ #1'"?ʻ #8ʻ 3"Dʻ +/ H72^ $ʻ #*'6ʻ ',ʻ $'?ʻ 5$,'' ")&,&#86ʻ $+ʻ ")&ʻ $+&ʻ %$?ʻ @& O 23 # 3"D/D #

<ʻ '(ʻ @&ʻ '' &'$!"&(6ʻ)$'' *)&'ʻ $'?ʻ +1!)ʻ 5,#!-$%$" #'ʻ +)$--ʻ 77ʻ , I E3 HDE!ʻ)$4&ʻ @&&'ʻ ++1&(6ʻ $--ʻ R1+" !&+6ʻ #'+"$@-&+6ʻ 5&$!&ʻ 88 !&,+6ʻ $'(ʻ #")&,+ʻ (#E32O7DE!ʻ "&ʻ *)#%ʻ ")&ʻ 9&!1" #'ʻ #8ʻ ")&ʻ 5,#!&++ʻ #8ʻ $*ʻ %$?ʻ 2,#2&,-?ʻ @&-#'.6ʻ H !ʻ 2#Gʻ 27ʻ $'(ʻ$-+#ʻ$--ʻ #%% ++ #'&(ʻ 88 !&,+ʻ !#%%$'('.ʻ +ʻ $>&+"?;+ʻ &.1-$,ʻ (O O E !ʻ #,!&+ʻ 'ʻ ʻ ʻ#,ʻ $'?ʻ 5$,'' ")&,&#86ʻ +)$--ʻ $'(ʻ &$!)ʻ #8ʻ ")&%ʻ +ʻ E #DGʻ '..^)&,&@?ʻ ,&C1 ,&(ʻ $'(ʻ &'>#'&(ʻ "#ʻ "$:&ʻ ")&ʻ %#+'' &88&!"1$-ʻ &$+1,&+ HD/Eʻ #ʻ /D^ 72#G!ʻ/D\ I /DGʻ
K $!!#,('. 3 ʻ E I CC/DEE

9 ' B ' ' (2C'

* E3 I / O2#HDE' # C/ H72 O DG' * E3/ H3EN' 2#G' 3 ' ED2/H"' . /' 2#G' O/ #4' 3 ' / 27' ' .^ .D#GD/E

$!!#,('.'"#' $*' 8#,' +122,&++ '.' '+1,,&!" #'$,?' $'(' #")&,' 3 +"1,B7' @$'!&+' $'(' 1",$.&+' '' $'?' 5$,'' #8' ' *) !)' %$?' @&' +2&! 8 &(' '' +1!)' 5,#!-$%$" #'' ,&+2&!" 4&-?6' $'(' "#' +&$,!)' 8#,6' $,,&+"6' $'(' (&"$ '' 8#,' , $-' 1'(&,' ") +' !"' &4&,?' 5&,+#'' *)#' +)$--' @&' !)$,.&(' 12#'' $")' * ")' $7?' 88&'!&' *) !)' @?' ")&' 5,#4 + #'+' #8' ") +' !"' %$?' @&' !#.' L$@-&' @?' #,' <78#,&' $'?' #1,"' @&,& 'B$8"&,' &%2#*&,&(' $'(' $1")#, L&(' "#' ",?' +1!)' 88&'!&

* I O7 #' 2' 4 (&'!&7#8 3"D' EE I #4' .' 2#6' +/2H72 ' # 23 #' 3"D/D ' ! #' H #32 #DG

< ' '(' @&' '' &'$!"&(6')$"' ")&' 5,#(1!" #'' 28' ")&' ' " ' !#'"$ ' '.' ")&' 51@- !$" #'' #8' $ 2,' 5,#!-$%$" #'' #,' ,(&, 1'(&,'") +' !"6' +)$--' ''$--' 5,#!&&('.+6' 4 -'$'(' , % '$-6' @&',&!& 4&(' $'(' (&&%&(' !#'!-1+ 4&' 4 (&'!&' #8' ")&' ++1 '.' $'(' #8' ")&' #'"&'"+' .'")&' 5,#!-$%$" #'' #,' ,(&,' +#' 21@- +)&(

D#2#3E' .' > I EDE' # C/ H72 O DG' * E3/ H3E' 3 ' GD7 FD/' 3 ' (" D.' (#^ E32O7D!' H' H //DH3' E3E' .'277 B 27DE!' G E3 #4 I E"^ #4' 3" ED' .' 3"D' 4D' .' ' ./ O' 3" ED' I #GD/

' '(' @&' '' 81,")&,' &'$!"&(6')$"' ")&' &'$'"+' $'(' 5#++&++#,+' #8' $--' #1+&+' $'(' ('#")&,' 1 -('.+' * ") ''$'?'+1!)' 2,#!-$ %&(' 3 +", !"' +)$--6' * ") '' $' ,&$+#'$@-&' %&' $8"&,' 22- !$" #'' "#' ")&%' ,&+2&!" 4&-?' %$(&6' $'(' +#' #8"&'' $+' +1!)' 22- !$" #'' +)$--' @&' +#' %$(&6' @?' $'?') &8' #'+"$@-&6' #,' $'?' #'+"$@-&' @?' +1!)') &8' #'+"$@-&' 8#,' ")$"' 51,2#+&' $1")#, L&(' @?' E , " ' '.' 1'(&,') +' $'('$'(' &$-6' + . '' $'(' (&- 4&,' "#' +1!)') &8' #,' #")&,' #'+"$@-&' * #' ",1&' $'(' !#,,&!"' +"+' #8' $--' ")&' $-&' ')$@ "$'"+' #,' '%$"&+' #8' &$!)' +1!)' #,' 1 -('.6' * ") ")&,' $%&+' $'(' 1,'$%&+' '' 81--6' (+" '.1 +) '.' ")#+&' *)#' $,&' #8' ")&' .&' #8' #1,"&&'' &$,+' #,' 12*$,(+' 8,#%' ")#+&' *)#' $,&' 1'(&,' ")$"' .&6' +1!)' +"+' "#' @&' ($"&(' $'('+ .'&(6' % ('"#')&' 8 --&(' 12' $!!#,('.' "#' ")&' #,%' '' ")&' !)&(1-&' "#' ") +' !"' $''&9&(' 2,&+!, @&(6' #,' $+' '&$,' ")&,&"#' $+' %$?' @&' ' $'('#'&' #8' +1!)' - +"+6' &#1'"&4+ .'&$' @?' +1!)') &8' #,' #")&,' #'+"$@-&6' +)$--' @&' (&- 4&,(' "#' ")&' 5&,+#'' + . ' '.' ")&' +$%&6' "#' @&' @?') %' 2#+"&(' #'') +' 3##,6' #,' '+ (&') +' #1+&6' #,' "#' @&' :&2"' @?') %' ' $'('$'#")&,' #8' +$ (' +"+' +)$--' @&' ",1-?' !#2 &(' '"#' $' ##:' "#' @&' 8#,' ")$"' 51,2#+&' :&2"' @?' +1!)') &8' #,' #")&,' #'+"$@-&6' $'('+)$--6' "#.&")&,' * ")' + !)' ##:6' ,&%$ '' '' ")&' $,&' $'(' 1+"#(?' #8' +1!)') &8' #'+"$@-&6' $'(' +)$--' @&' :&2"' $"' ")&' '&$,&+"' 5#+- !&' "$" #'' #,' &-+&*)&,&,&6' $+' "#' @&' +1!)') &8' #'+"$@-&' +)$--' +&&%' 8 '' $'(' &4&,?' +1!)' &'$'"' ,&81+ '.' #,' '&.-&!"' '.' "#' %$:&' $'(' + . '' +1!)' +"+' * ") '' $' ,&$+#'$@-&' %&' $8"&,' @& '.' +#' ,&"' ,('"#' %$:&' $'(' + . '' ")&' +$%&' $+' $8#,&+$ (6' +)$--6' 12#'' ")&' #%2-$ '"' #8' +1!)') &8' #,' #")&,' #'+"$@-&7' @&' 8 '&(' '' $'?' 1%' '#"' &9!&&('.' '&') -- '.' $' 3$?' 8#,' &$!)' 3$?' ")$"')&' +)$--6' $8"&,' +1!:' &C1&+"' +#' %$(&' $+' $8#,&+$ (6' ,&81+&' #,' '&.-&!"' "#' %$:&' $'(' + . '' +1!)' +"+6' #,' +)$--' @&' %2, +#'&('1'" -')&' +)$--')$4&' %$(&' $'('+ .'&('+1!)' +"+' $'(' +1!)' '&' #,' %2, +#'%&'' +)$--6' $8"&,' (1&' #"' !&' $'(' 22#,"1' "?' #8' 3&8&'!&6' $!!#,('.' "#' ")&' !#1,+&' #8' ")&' #1,"6' @&' $*$,(&(' @?' $'(' $'' ")&' 3 +!,&" #'' #8' ")&' R1+" !&+' #8' 5&'"?' &++ #'+' #8' ")&' 3 +", !"' 2' *) !)' +1!)' &'$'"+' $'(' 5#++&++#,+' +)$--' ,&+2&!" 4&-?' @&' ,&+ (&''

A27ED' 323D^ O D#3' GDD O DG' 2' B EGD^ O D2# /

5,#4 (&(' $-*$?+6' ")$"' $'?' 8$-+&' "$"&%&'' #,' 122,&++ #'' #8' ")&' ,1")' '$'?' +1!)' +'' +)$--' @&' (&&%&(' "#' @&' $' +(&%&$'#,6' $'(' ")&' 5&,+#'' #,' 5&,+#'+' .1 -"?' #8' * -81--?' %$: '.' ")&' +$%&' +)$--' @&' 21' +)A' $@-&' $!!#,('.-?

A / O E' . /' + !)7 +"+"#' @7<#4E&(^

' '(' '' #,(&,' "#' 8$! - "$"&' ")&' %$: '.' +1!)' +"+6' @&' '' 81,")&,')$"' ")&') &8' #'+"$@-&+' #8' 5#- !&' * ") '' 71!)' 3 +", !" 2,#4 (&' $'(' :&&2' $"' ")&,' +&4&,$-' 5#- !&' "$" #'+6' 8#,>)&' V+&' #8 +1!)

K B ' ' (2C

+1!)' &'$'"+' $'(' 5#++&++# +' #8' #1+&+' $+' $8#,&+$ (6 2, '"&(' #,%+ #8' +"+' $!!#,('.' "#' ")&' #,%' ' ")&' !)&(1-&' "#' ") +' !" $' '&9&(6 $'(' +)$--' 81, ' +)' ")&' +$%&' "#' +1!)' &'$'"+' $'(' 5#++&++#,+' 8,&&' #8 92&'!&' $'(' ")$" +1!)') &8' #,' #")&,' #'+"$@-&+' +)$--' $-+#' $++ +" ")&' +$ (' 5&,+#'+' ' ")&' 8 -- '.' $'(' %$: '.' $'(' + .' '.' #8' +1!)' +"+6 8' @?' ")&%' +#' ,&C1 ,&(' v $'(' ")$" "#' (&8,$?' - &' 92&'!&+' #8' +1!)' &CD#HDE 2, '"&(' #,%+' $'(' 28' +1!)' ##:+6' ")&' H,$'(' R1,?' #8' ")&' #1'"?6 #1'"?' #8' $' "?6' #,' #1'"?' #8' $' #*'6' * ") ' *) !)' +1!)' 3 +", !" 2,& '"%&'" #,' $'?' 5$," ")&,&#8' +' + "1$"&6' +)$--' $'(' %$?' $'(' +')&,&@?' ,&C1 ,&(' $" ")&' ++ L&+' '&9" $8"&,' ")&' %$: '.' #8' +1!)' 5,#!-$%$" #'6' $'(' #8' %$: '.' +1!)' +"+' $+' $8#,&+$ (6' "#' 2,&+&'" +1!)' 1%' #,' 1,$+' $+' +)$--' @&' +188 ! &'" "#' (&8,$?' ")&' 92&'!&' #8' ")$" 5#," #' ' #8' ")&' 3 +", !" -#!$--?' + "1$"&' * ") ' ")&' R1, +(!" #' ' #8' +1!)' H,$'(' R1,?6' $'(' *) !)' 1%+' +)$--' @&' -&4 &(' #88' +1!)' #1'" &+' ,&+2&!" 4&-?6' $'(' 2$ (' #4&,' "#' +1!)') &8' #'+"$@-&' $+' $8#,&+$ (

' '(' @&' " &'$!"&(A')$" '#' &&" '.' #8' $'?' ++&%@-?6') ' B DD3 #4' ++#! $" #'6' #,' #(?' #8' 5&,+#'+' +)$--' @&')&-(' ' $'?' 3 +", !" 2,#N 277 ZDG' #' 2' !-$ %&(' 1'(&,' ") +' !"6' 8#,' ")&' 51,2#+&' ,' 1'(&,' ")&' 5,&"&'!&' #8' C/ 72 # DG' 2&" " #' '.' 5$,- $%&'"6' #,' (+!1++ '.' #,' (&- @&,$" '.' #' #,' ,&+2&!" '. *] / H3' . /' ")&' 1@>&!" #8' $'?' $--&.&(' 21@- !' H, &4$'!&6' #,' $'?' $""&,' ' CD3 3 D#7#4')1,!)' #,' "$"&6' 1'-&++' $' *, ""&' ' #" !&6' +2&! 8? '.' ")&' 51,2#+&' +2/7 2 0 D#3!' #8' ")&' '"&'(&(' &&" '.' #8' +1!)' ++#! $" #'6' ++&%@-?6' #,' #(?' ' Z 3" I 3' #8' 5&,+#'+6' $V(' +"$" '.' ")&' 3$?6' #1,6' $'(' 5-$!&' $" *) !)' ")&' C/DF IE') ^ +$%&' +)$--' @&' 2,#2#+&(' "#' @&')#-(&16' +)$--')$4&' @&&' . 4&' ' &' ' 3 HD' 4 FD#' 3 ' 3$?+' $" -&$+" 2,&4 #1+' "#' ")&' 3$?' +"$"&(' ' +1!)' #" !&6' "#' ")&') &8' 3"D' /G' &!,&"$,?' #8' ")&' #,(' #1"&'$'" #,' #")&,') &8' H#4&,'#,' #,' H#N D I 3D#2#3!' 4&,'#,+' #8' ' #,' ' !$+&' #8') +' @+&'!&' "#') +' V'(&,' &!,&N 2#G' " E' (#' "$,?6' $'(' ")&' #'+&'" ' E, " '.' #8' +1!)' #,(' &1"&'$'" #,' #")&,' ED 3 O32 #DG) &8' H#4&,'#,' ',' H#4&,'#,+' 8#,')#-('.' +1!)' &&" 8 .6' + .' 8 &(' @?' +1!)') &8' #,' V'(&" &!,&"$,?6' +)$--' @&' #@"$ '&('>' $'(' &4&,?' &&" '.' & " 7 #8' $'?' ++#! $" #'6' ++&%@-?6' #,' #(?' #8' 5&,+#'+' *) !)' +)$--' @&' "D7G' Z 3" I 3')#-(&' ' 8#,' +12)' 51 B2#+&+' $'(' 1'(&,' +1!)' 5,&"&9"+6' #,' $'?' #8' ")&%6' E I H"') 3 HD' ' $'?' 3 +"' (" 2,#!-$ %&(' 1'(&,' ") +' !"6' * ")#1" +1!)' 2,&4 #1+' 2#G' (#ED#3' #" !&' $'(' #'+&'" $+' $8#,&+$ (6' +)$--')&' (&&%&(' "#' @&' $" 1'-$*81-' GDH72/DG' 77D^ ++&%@-?' >' $'(' &4&,?' 5&,+#" 2,&+&'" $" ")&' +$%&' +)$--6' 12#' ' #'N 427' 4 !" #'6' @&' (&&%&(' .1 -"?' #8' $' +(&%&$'#,A

' 5,#4 (&(' $-*$?+6' $'(')&' "&'$!"&(6')$" '#") '.' ' ") +' !") 3' 3 'D&3D#G' !#'"$ '&(' +)$--' &9"&'(' #,' @&' !#'+",1&(' "#' &9"&'(' "#' 2,#) @ "6' #,' "#' 3 ' B DD3 #4E' &'$@-&' ")&' #,(' &1"&'$'" #,' #")&,') &8' H#4&,'#,' #,' H#4&,'#,+' #8' H #FD#DG' O6' ' "#' 2,#) @ "6' ' $""?' #1'"?6' #1'"?' #8' $' "?6' #,' #1'"?' #8' $' > 4"' "D/ ..!' H #*'6' *)&")&,' ' $'?' 2,#!-$ %&(' 3 +", !" #,' &-+&*)&,&' ' ' $'?' &&" '.' *) !)' +)$--' @&' (1-?' #'4&'&(' @?' ")&' .)')&, 88' #,' &1"&'$'" #8' +1!)' #1'"?6' #,' @?' ")&' &1"&'$'" #,') &8' $. +",$"&' #8' +1!)' #1'"?' #8' $' "?' #,' #1'"?' #8' $' #*' ' 5,#4 (&(' '&4&,N #' C/ H72 ODG' ")&-&++6' ")$" ' $'?' 2,#!-$ %&(' 3 +", !" " +)$--' '#" @&' -$*81-' 8#,' $'?' * E3/ H3E' 5&,+#' '#" @& '.' ,&+ (&'"6' '#,' @& '.' ,&. +"&,&(' $+' $' ,&&)#-(&,' #8' 2#6' +D/E #' *&'"?' 5#1'(+' #,' 12*$,(+' ' ,.)" #8' 5,#2&,"?' + "1$"&' * ") ' ")&' # 3' OD #4' /D^ #1'"?6' $,#'?6' $-8' $,#'?6' 5$, +)6' #,' 3 +", !" 8 ,' *) !)' +1!)' E GD#3' /' 2' &&" '.' +)$--' @&' !#'4&'&(6' "#' "$:&' 2$," ' #,' @&' 2,&+&'" $" $@?' +1!)' /D4 E3D/DG' &&" '.' $'(' ")$" $'?' 5&,+#' "$: '.' 2$," ' #,' @& '.' 2,&+&'" $" A/DD" 7GD/' .' +1!)' &&" '.6' $'(' '#" @& '.' ,&+ (&'" '#,' ,&. +"&,&(' $+' $8#,&+$ (6 U ' 32] #4' C2/3' 23' B DD3 #4E

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)1OOD/ . &%@&,+ &#'! B7$A C 3&! +#'+ " EIH" (I/3E!

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D 5D2#323 &$, "$1 #4 3 2H3 2E ,IG4D GF ^ H23D 23! EIH" (I/3E

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/G D I 3D^ #2#3! H' O 26 /GD/+D/E #E H"2/4DG Z 3" '..D#HDE O6 3" E H3 O 2GD H 4# d2O7D O6 (I/3E B2/^ 3 27 3 'OD 3/ DG OD. /D 3"DO

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&%2#*&,&("# #,(&, ")$" &4&,? 5&,+#' !)$,.&(* ") $'? #8 ")&
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8 ,%&(@? ")& #,(&1"&'$'"#,#"- &,) &8 H#4&,'#,#, H#4&,'#,+
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+1!) #1," $,"$- $'(6 "# !#'8 ,% ")& &'"&'!&+ #8 +1!) #1,"
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88&!" $+ 8 ")& , $- #8 +1!) 88&'!&+)$(@&&')$(@&8#,& $'(")&
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H&'&,$- H$#- 3&- 4&,?6 #, &++#'+ #8 ")& 5&$!&] 5,#4 (&($-*$?+6
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#HD/32 # (2EDE D#^ 3D#HDE E"27 OD H #. / O DG O6 3"D /G D I 3D#2#3 OD. /D 3"D6 2/D H2// DG #3 'D..DH3

! /G D I^ 3D#2#3! H' O 26 EE I D '/GD/E . / O/ #4 #4 OD^ . /D 3"D (I/3 +D/E #E H"2/4DG Z 3" '..D#HDE / . / H2//6 #4 #3 'D..DH3 3"D / D#^ 3D#HDE

'(@& "&'$!"&( )$" " +)$-- $'(%$? @& -$*81- 8#, ")&
#,(&1"&'$'"#,#")&,) &8 H#4&,'#,#, H#4&,'#,+ #8 '#,
+1!) 5&,+#' $+ +)$-- @& (1-? $1")#, L&(@?) % j, ")&% 8#, ")$" 51,N
2#+&6 8,#% %& "# %& "# ++1& +1!) ,(&,+ $+ "#) % #, ")&% +)$--
+&&% 8 " 8#, @, '.'. @&8#,& +1!) #1," $'? 5&,+#' !)$,.&(* ") $'?
88&'!& @? ") + !" %$(& !#.' L$@-& @? +1!) #1,"6 #, 8#, &9&!1" '.
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$'? +1!) #1," ,&+2&!" 4&-? > *) !) ,(&,+ $-")&, 8 7 R1+" !&+ #8
")& 5&$!&6 H$#-&,+6 #'+"$@-&+6 88 !&,+6 $'('+"&,+ #8 R1+" !&6
$'(#")&, 5&,+#'+ "# *)#% ")& +$"'& +)$-- @& (,&!"&(6 $'("# *)#%
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(I/3E B2/^ 3 27 O 26 H O CD7 3"D 33D#G2#HD '@ 3#DEEDEN

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#1," $,"$-6 #, $'? &%@&, ")&,&#86 $'(")&? #,)& $,&)&,&@? ,&N
C1 ,&(6 "# +1%%#'6 $+ *&-- #' ")& 5$,"#8 ")& 3&8&'!& $+ "@& 5,#+&N
!1"#'6 $'? 5&,+#'6 *)#+& 4 (&'!& O 26 @& ,&C1 ,&("# $22&$, @&8#,&
+1!) #1," "# . 4& 4 (&'!& 12#' 2#6 , $- "#1!) '. $'? 8 88&'!&6
$""&,6 #,) '. !#.' L$@-& @? +1!) #1," $'(8 ")& 5&,+#'
+# +1%%#'&(+)$-- ,&81+& #, '&.-&!" "# $""&'(#@&(&'!& "# +1!)
1%%#'+6 " +)$-- @& -$*81- 8#, +1!) #1,"6 $8"&, 5,##8 12#' $")
#8 ")& (1& &,4 !& #8 +1!) 1%%#'+6 "# ++1& $ E$, B$'" "# $22,&)&'(
$'(@, '. @&8#, +1!) #1," ")& 5$,"? +# ,&81+ '. #, '&.-&!" '.>
$'(' !$+& #8 ")& &81+$- #8 $'? 5$,"? "# @& &9$% '&(#, "# . 4&
4 (&'!& "#1!) '. $'? $""&, "#*)))& #,)& +)$-- @& '&,,#.$"&(
@? +1!) #1," #,) &,&(&@ '. '# -$*81- @>&!" #' ")&,&#"[6 ")& '" +)$--
@& -$*81- 8#, +1!) #1," "# !#%% " ")& 5&,, ' +# ,&8$, '. "#7
6 1+"#(?

2#G H O O 3 # H2ED . =D. I E27 3 ' 4 FD F ^ GD#HD

; , B ' ' (2C ' V

1+"#(?' 8#,' $'?' 2&, #(' '7" &9!&&('.'),&&' #'")+6' #,' 1'" -' +1!)'
5&,+#'' +)$--' +##'&,' +1@% '' "#' @&' &9$% '&(' $'(' $'+*&,' "#1!) '.' ")&'
$""&,+' @&8#,&' ")&'+$:-' #1,"

' '(' @&' '' &'$!"&(6')$" $'?' 5&,+#'' $@-&' "#' @&' 2,#B' #6' +D/E #'
+&!1"&(' 8#,' $'?' 88&'!&' !#%% ""&(' * ") 'O$'?' 5 +", !" 2,#!-$ %&(' $+' <$@&3 'OD' \'
$8#,&+$ (6' !#'",$,?' "#' ")&' 5,#4 + #'+' #8'$'' !" 2$++&(' ''")&' 5$,- $%&''
' ' '")&' *&'"?B+&4&'")' &$,' #8' ")&' & .'' #8' D '.' H&#,.&' 2,#! $% '
")&'),(6' '" "1-&(' ' ' ' ' * ' ' ' 2' * E3/ H3'. /'
*" ' ' ' ' * ' M ' > * ' ' > ' ' ' $8-?288&'!&'
! (' ' ' *" ' ' ' * ' ' + ' C :;
' ! ' #,' !#'",$,?' "#' ")&' 5,&4 + #'+' #8' $'' !" 2$++&(' '' X-[6' O'H' '
")&' 8" &")' &$,' #8' ")&' +$%&' & .'6' '" "1-&(' ' ' ' ' * ' !' 6O
' ' ' * ' ' + ' ' $ ' ! ' 7 ' Z
,&-$'(6' ' ' ' > ' ' ' ' / ' ' < 6'
* ' ' #,' !#'",$,?' "#' ")&' 5,#4 + #'+' #8' $' !&,"$ '' #")&,' !" /' Z 3"' 2#6'
2$++&(' '' ")&' ,+" $'(' &!#'(' &$,+' #8' ")&' & .'' #8' +' 2,&+&'' 88&'!&'
$>&+"?6' '" "1-&(' ' ' ' ' * ' ' ' ' ' ' > * '
' ,&-$'(' ' ' > ' ' 8 ' 6 ' ' ' ' ' ') ' "7&(' @? ! '
B ' O ' H&#,.&' ' 5 ' ' % ' ' ' ' (I/3E' $,B'
A * ' * + ' ' ' > ' $ ' ' O * ' ' ' "WA
' > ' * ' * ' #,' !#'",$,?' "#' ")&' 5,#4 + #'+' #8'
")&' +$ (' !" #8' ")&' 8"&&'")' $'(' 9"&&'")' &$,+' #8' D '.' ' ")&'
) ,(' ")&,& '' ,&8&,,&(' "#6' #,' !#'",$,?' "#' ")&' 5,#4 + #'+' #8' $' !&,"$ ''
#")&,' !" 2$++&(' '' ",&' &!#'(' $'(') ,(' &$,+' #8' ")&' & .'' #8' +'
2,&+&'' $>&+"?6' '" "1-&(' ' ' ' ' ' ' 1 ' 6 ' '
' ' > ' > ' ' ,&-$'(6' #,' !#'",$,?' "#' ")&' 5,#N
4 + #'+' #8'$'?' !" #,' !"+' "#' !#'" '1&' ")&' +$ (' !"+' #,' $'?' #8' ")&%6'
$'(' $-+#' &4&8?' 5&,+#'' !)$,.&(' * ")' $'?' 88&'!&' !#'",$,?' "#' ")&'
2,#4 + #'+' #8' ") +' !"6' &9!&2" $'?' 88&'!&' !,&$"&(' @?' ") +' !"6' $'(' 9!&2' #'6'
(,&!"&(' "#' @&' ", &(' $'(' 2,#+&!1"&(' $!!#,('.' "#' ")&' #1,+&' #8' ")&'
#%%#'' $*6' +)$--' $'(' %$?' @&' ", &(' @?' $'(' @&8#,&' $' #1," $," $-'
"#' @&' $22#' '"&(' $+' $8#,&+$ (6' $'(' *)&")&,' ")&' 88&'!&' +#' !)$,.&('
+)$--' #,' +)$--' '#")$4&' @&&'' !#%% ""&(' @&8#,&' ")&' ++1 '.' #8' $'?'
5,#!-$%$" #'' 1'(&,' ") +' !"] 5,#4 (&(' $-*$?+6' ")$" '' !$+&' ")&' !#1,"+' $,B'
#,(' - &1"&'$'" +)#1-(' (,&!" ")$" $'?' 5&,+#'' !)$,.&(' * ")6' $'?' "$-' %$?' K
88&'!&' !#'",$,?' "#' $'?' #8' "-&' !"+' $8#,&+$ (6' *) !)' @?' $*' '#*' +' 1?' $2'"$-
#,' %$?')&' 21' +)$@-&' * ")' 3&$")6' +)$--' @&' ", &(' @&8#,&' $'?' #1,"76W.\ :
$," $-' $22#' '"&(' 1'(&,' ") +' !"6' +1!)' #1,"6' '' !$+&' #8' #'4 !" #'6' ,$1+2#,"$B
+)$--6' '+"&$(' #8' ")&' 51' +)%&'' #8' 3&$")6' +&'"&'!&' +1!D' #'4 !" "#' "#'' @1"'#'
,$'+2#,"$" #'' 8#,' 8&' #,' 8#,' $'?' 5&, #(' '#" -&++' ")$'' &4&'' &$,+''
$'(' 2,#4 (&(' $-+#6' ")$" +1!)' #1,"+' +)$--' '' '#' $+&' %2#+&' ")&' *@22 '.'
5&'$-"?' #8' *) 22 '.6' #'' $'?' 5&,+#'' !#'4 !"&(' @?' #,' @&8#,&' +1!)'
#1,"+]' 5,#4 (&(' $-*$?+6' ")$" '' +)$--' '2" @&' -$*81-' 8#,' $'?' +1!)' #'"#",?
#1," $," $-' "#' !#'4 !"#,'",?' $'?' 5&,+#'' 8@,' $'?' 88&'!&' *)$"+#&4&,' 88&'!&
!#%% ""&(' $" $'?' %&' @&8#,&' ")&' 2$++ '.' #" ") +' !"] 5,#4 (&(' @&8#,^")&'
$-+#6' ")$" '#") '.' ") + !" +)$--' @&' (&&%&(' #,' "$:&'" "#' .B4&' "#' 2$++ '.' #8'
+1!)' #1," $," $-' $'?' 5#*&,' #,' R1, +(!" #'' "#' ",?' $'?' 5&,+#'' #,' ")+' !"'
5&,+#'+' !)$,.&(' #,' "#' @&' !)$,.&(' * ")' ")&' 2, '" '.6' 21@-+) '.6' #,' #,' 88&'!&+
! ,!1-$" '.' #8' $'?' 3 @&-6' #,' * ")' $'?' #%@ '$" #'' #,' #'8&(&,$!?'
#'",$,?' 8#' ")&' 5,#4 + #'+' #8' ")&' +$ (' ,&! "&(' "$"1"&' #8' ")&' *&'"?B' / H ' !'-6'
+&4&'")' &$,' #8' ")&' & .'' #8' D '.' ")&') ,(6' #,' * ")' $'?' X [1'-&++
5,&4&'" #'' #,' @+",1!" #'' #8'$'?' 5&,+#'6' #8' $'?' !" "#' (&8,$1(' $,"?' +1!)'-$+"B'
A H' 5&,+#'

T %% B ' ' (2C

0D#3 #DG'
' ..D#HDE'E"277'
7 :(* ")'
#* '

5&,+#'' ' ")&' ++&," #'' #,' '8#,!&%&'" #8'$'?' 4 - .)" #,' -$ %'
!#'",$,?' "#' ")&' 5,#4 + #'+' #8' ")&' +$ (' '+"B%&'" #'&(' "$"1"&6' 1'-&++'
#%@ '$" #'' #,' 5,&4&'" #'6' @+",1!" #' #,' !"6' +)$--' @&' $!!#%A'
2$' &(' @?' #,!&' #,' @?'),&$"+' @1'' ")$"' $--' +1!)' 88&'!&+6' 1'$!!#%N
2$' &(' @?' #,!&' ,>),&$"+' $+' $8#,&7 : -6' +)$--' ,&%$ '' ", $@-&' $!!#,('.'
"#' ")&' #1,+&' #8' ")&' #%%#'' $*

+D/E #E'. I#G'
I3' .'3"D /'
> IEDE' I#GD/'
EIEC H IE'
(/HI 0^
E32#HDE' #' 2'
C/ H72 0DG'
* E3/ H3' 2.3D/'
I#ED3!' 026'
OD'H 0 0 33DG!'
2#G' .'H #^
F H3DG
GDD0DG'4I 736'
.'2' B EGD^
0D2# /'

' '(' @&' "&'$!"&(6')$" $'?' $. +",$"&6' 5&$!&' 88 !&,6' #,'
#")&,' 5&,+#'' 8#,' ")$" 51,2#+&' $1")#, L&(' @?' ")&' #,(' &1"&'$'' #,'
#")&,') &8' H#4&,'#,'#,' H#4&,'#,+' #8F,&8$* ! 6' +)$--' $'(' %$?' !$1+&'
"#' @&' $22,&)&'(&(' $'(' !#%% ""&(' $'?' 5&,+#'' *)#6' * ") '' $'?' +1!)'
2,#!-$ %&(' 3 +", !" $+' $8#,&+$ (6' $'88' 1'(&,' +1+2 ! #1+' ,!1%+"$'!&+6'
+)$--' @&' '' ")&' &-(+6' ",&&"+6' .) *$?+6' #,' &-+&*)&,&' #V" #8') +' #,'
)&,' 3 *&-- '.' #,' 5-$!&' #8' @#(&6' $" $'?' %&' 8,#%' '&' #1,' $8"&,'
1'+&' 1'" -' 1', +&' > $'(' +1!)' 5&,+#'' +)$--' $'(' %$?' @&' (&"$ '&('
1'" -' , $-6' 1'-&++' 2,&4 #1+-?' (+!)$,.&(' #,')&-(' "#' $ -' @?' +#%&'
5&,+#'' ")&,&"#' $1")#, L&(' $'(' ")&' #1," @&8#,&' *)#%' +1!)' 5&,+#''
+)$--' @&' ", &(' +)$--' 'C1 ,&' '"#' ")&' +$ (')$,.&6' $'(' 1'-&++' ")&'
5&,+#2' $!!1+&(' +)$--' %$:&' " $22&$,6' "#' ")&' $" 7$!" #'' #8' +1!)'
#1,"6' ")$")&' #,' +)&' *$+' #1" #8') +' #,')&8' #1+&' 12#'') +' #,')&,'
-$*81-' !!$+ #'+6' +1!)' 5&,+#'' +)$--' @&' (&&%&(6' .1 -"?' #8' $' +N
(&%&$'#,

, I E3 HDE!' H'
026!' 2.3D/'
I#ED3!'
/D\I /D' 3"D'
B BD' #"2^
0 32#3E' .'2#6'
> IED' #' 2'
C/ H72 0DG'
* E3/ H3' 3 '
E" Z' 3"D0^
ED7FDE!

' '(' @&' " 81,")&,' &'$!"&(6')$" "+)$--' $'(' %$?' @&' -$*81-'
8#,' $'?' R1+" !&' #8' ")&' 5&$!&' * ") '' $'?' #1''?6' #1''?' #8' $' "?6'
#1''?' #8'$' #*'6' #,' #")&,' 3 +", &" 2,#!-$ %&(' 1'(&,' ") +' !"6' $'('
8#,' $'?' 5&,+#'' ")&,&"#' $1")#, +&(' @?' ")&' E $,,$'" #8'$'?' +1!)' R1+" !&'
#8' ")&' 2&$!&6' 8' ")&' 5&,+#'' +#' $1")#, L&('@&'$ 9 #%2$' &(' @?' $' #%N
% ++ #'&(' 88 !&,' #8' +' $>&+"?A ' ,%?' #,' $') &8' #'+"$@-&' #8'
5#- !&6' $" $'?' %&' 8,#%' '&' > # D' $8"&,' 1'+&' 1'" -' 1', +&6'
"#' (&%$'('$'(' ,&C1 ,&' ")$" 8#&' $-&' ')$@ "$'"+' #,' '%$"&+6' @?'
$%&6' #8' $'?' #1+&' #,' #")&,' 1 -('.' * ") '' $'?' +1!)' 2,#!-$ %&('
3 +", !"6' +)$8" !#%&' 8#,")' $'(' +)#*' ")&%+&-4&+' "#' +1!)' R1+" !&' #,'
$1")#, L&(' 5&,+#'6' $'(' 8' $'?' #8' +1!)' $-&' ')$@ "$'"+' #,' '%$"&+'
X@&' '.' $@#4&' ")&' .&' #8' #1,"&&'' &$,+6' $'(' @&8#.' +#' (&%$'(&('
$'(' ,&C1 ,&(6[' +)$--' '#"6' * ") '' $' &$+#'$@-&' %&' $8"&,' +1!)'
3&%$'(6' !#%&' 8#,")' $'(' +)#*') %+&-8'), ")&%+&-4&+' $+' $8#,&+$ (6'
+1!)' 5&,+#'' #,' 5& +#'+' +)$--' @&' (&&%&(' $'(' "$:&'' "#')$4&' @&&''
$@+&'" 8,#%7 ")&,' #1+&+' $" ")&' %&' #8' +1!)' 3&%$'(6' +$4&' $+'
)&,& 'B$8"&,' 2,#4 (&(' $'(' $'?' $. +"%"&' #,' 5&$!&' 88 !&,' %$?' !$1+&'
"#' @&' $22,&)&'(&(' $'(' !#%% ""&(' $'?' 5&,+#'' #,' 5&,+#'+' *)#' +)$--'
)$4&' @&&'' $@+&'" 8,#%6' ")&' #1+&+' $" ")&' %&' ! 8' +1!)' 3&%$'('
$'(' +1!)' 5&,+#'' #,' 5&,+#'+' +)$--' @&' (&&%&(' .1 -"?' #8' $' +(&%&$'#,6'
$'(' +)$--' @&' !#'4 !"&(' $'(' 21' +)&(' $!!#,(: 7?6' 1'-&++' 21!@' 5&,+#''
#,' 5&,+#'+' !$" %$:&' " $22&$,6' "#' 8#&' $" +8$!" #'' #8' ")&' #1," @&8#,&
*) !)')&' #,' ")&?' +)$--' @&' ", &(' 8#,' ")&' +1 (' 88&'!&6' ")$")&' ,' ")&?'
*$+' #,' *&,&' $@+&'" #'') +' #,' ")&' ,-$*81-' $'(' 2,#2&,' !!$+ #'+' 5,#N

+D#E #E' 20^
ED#3' GDD0DG'
4I 736' .' !
2' B EGD^
0D2# /!' I#^
7DEE' 3"D6C/ FD'
E 0D' 72Z. I7'
' HH2E #

, I E3 HD' 026'
2HHDC3' &^
H I ED'. /' 2#'
OED#3DD!' .'
E23 E. DG' .'
3"D' /I3"'
3"D/D .

4 (&(' $-*$?+6' ")$" 8' $'?' 9!1+& @&' %$(&' ,' #88&,&(' 8#,' ")&' #'B'
$22&$,$'!&' #8' $'?' 5&,+#'' +#' (&%$'(&(' #,' ,&C1 ,&(' $+' $8#,&+$ (' +1!)
'R1+" !&' #,' $1")#, L&(' 5&,+#'6' @&' '.' +$" +8 &(' * ")' 8#&' ,1")' ")&,&#8'
%$?' $!!&2" +1!)' 9!1+&' @1" 8' +1!)' R1+" !&' #,' $1")#, L&(' 5&,+#8'
+)$--')$4&' &$+#'' "#' +1+2&!" +1!)' 9!1+&' "#' @&' 1'",1&6')&' %$?'
")&,&12#'' (&%$'(' (% ++ #'' 8#,') %+&-8' $'(' '&' #")&,B5&,+#V'') +
(6

```
)(6 8#, ")& +#-& 51,2#+& #8 +&& '. ")& 5&,+#' 8#, *)#% +1!) 9!1+&
*$+ +# #8-8&,&(7 $'( ' !$+& (% ++ #' 8#, +1!) 51,2#+& +)$-- @&
,&81+&(6 #, +)$-- '#" @& #@"$ '&( * ") '$ ,&$+#'$@-& %& $8"&, +1!)
M3&%$'(6 ")&) +1!) 5&,+#' +# (&%$'(&( $'( ,&C1 ,&( +)$-- @& (&&%&(
$'( "$:&' "# )$4& @&&' 2OED#3 8,#% ) + #1+& $" ")& %&7#8 +1!)
3&%$'( W O

< '( @& " &1$!"&( )$" 8 $'? R1+" !& #8 ")& 5&$!&6
#, #")&, 5&,+#' $1")#, L&( )? ")& E$,,$'" #8 +1!) R1+" !&6 +)$-- '
$'? +1!) 2,#!-$ %&( 3 +", !" 8 '( $'? ,%+ #, %%1' "#'6 #, $'?
5 :&6 2 :& &$(6 2&$,6 3 ,:6 #, $'? #")&, #88&'+ 4& E&$2#'6 '
")& 3 *&-- '. #1+& #, 2#++&++ #' #8 $'? 5&,+#' #, 5&,+#'+ '#" (1-?
$1")#, +&( "# :&&2 ")& +$%&6 &4&,? +1!) 5&,+#' +)$-- @& (&&%&( .1 -"?
#8 $ +(&%&$'#,6 $'( %$? @& #'4 !"&( $'( 21' +)&( $!!#,( '.-?
@? $ #1," $," $- 1'(&, 7 + !"6 1'-&++ +1!) 5&,+#' +)$-- %$:& "
$22&$, "# ")& $" +8$!" #' #8 ")& #1," @&8#,& *) !) )&6 +)&6 #, ")&?
+)$-- @& ", &(6 ")$" +1!) ''+6 %%1' "#'6 #, #88&'+ 4& E&$2#'+ $+
$8#,&+$ ( *&,& ' ) +6 )&,6 #, ")& , #1+& #, 5#++&++ #' * ")#1" ) +6
)&,6 #, ")& , D'#*-&(.&6 5, 4 "?6 #, #'+&'"
```

```
. /OE 2/D
. I#G # 3"D
+ EEDEE # .
2#6 +D/E #
# 3 2I3" ^
/ EDG 3 ]DDC
3"D E2#/D! "D
E"277 OD
GDD# DG4I 736
. 2 B EGD^
OD2# /
```

```
< '( @& " &'$!"&( )$" &4&,? 5&,+#' *)# +)$-- * -81--? #,
%$- ! #1+-? '>1,& & ")&, ")& 5&,+#'6 ), ")& 5,#2&,"?6 D&$- #, 5&,+#'$-6
#8 $'? 5&,+#' *)# )$+ $22&$,&( #, +)$) $22&$, $+ $ R1,#,6 E "'&++6
5,#+&!1"#,6 #, #")&, * +&6 8#, ")& 51,2#+& #8 $'? 5,#+&!1" #'6 #, $'?
4 - !" #' #, 5,#!&&( '.6 8#, #, @? ,&$+#' #8 $'? ") '. (#'& ")&,&N
12#' @? +1!) 5&,+#'6 #, *)# +)$--6 @? &'$!&+ #, #")&, * +& )#*+#N
&4&,6 (&"&, #, '" % ($"&6 #, &' (&$4#1, "# (&"&, #, '" % ($"&6 $'? 5&,N
+#' 8,#% $22&$, '. #, $!" '. '$'? + !) 5,#+&!1" #' #, 4 - !" #'
#, 5,#!&&( '.6 $+ $ R1,#,6 E "'&++6 5,#+&!1"#,6 #, ")&, * +&6 8#, ")&
51,2#+&+ #8 1!) K5, +&!1&& #""6 !" #'6 #, 5,#!&&( '.6 #, 8,#% ( +N
!)$,. '. ) + #, )&, 3 1"? '")$" &)$-86 +)$-- 12#' #'4 !" #' @&
(&&%&( .1 -"? #8 $ +(&%&$'#,6 $'( %$? @ +&'"&'!&( "# @& ",$'+N
2#,"&( 8#, $'? &,% )#" -&++ ")$' &4&' '#, %#,& ")$' #1,"&&'
&$,+ $'( &4&,? +1!) 88&'!&6 8 !#%% ""&( * ") '$'? +1!) 2,#N
!-$ %&( 3 +", !" $+ $8#,&+$ (6 +)$-- @& !#.' L$@-& @? $ #1," $," $-
$22# '"&( 1'(&, ")& 1")#, "? #8 ") + !"
```

```
+D/E #E Z 7^
.I776 #5I / #4
2#6 #D @"
"2E 2CCD2/DG
2E,I/ D5@ 3^
#DEE! H!
/ GD3D// #4
23 6 #D ./ O
2CCD2/ #4!
E"277 OD
7 2O7D 3
/2#EC /^
323 # !
```

```
< 5,#4 (&( $-*$?+6 )$" # $-- $+&+ ' *) !) @? $'? $*
'#* ' 8#,!& $'? +1!) 88&'!& *#1-( $%#1'" "# &-#'?6 $'( ")&
5$,"? !#'4 !"&( ")&,&#8 *#1-( @& +1@>&!" "# @& 21' +)&( * ") 3&$")6
$'? +1!) 88&'!& +)$-- +" -- @& (&&%&( $ &-#'?6 $'( ")& 5&,+#' !#'B
4 !"&( ")&,&#8 @? $'? !#%2&"&'" #1," #")&, ")$' $ #1," $," $-
1'(&, "7 58#4 + #)+ #8 ") + !" +)$-- @& 1@>&!" "# @& 21' +)&( * ")
3&$")6 $'? ") '. )& & ' "# ")& !#'",$,? '#"* ")+"$'( '.
```

```
+/ F E 2E 3
' ..D#HDE CI
1 1'(&<
2#6 2Z # Z
" . /HD!
```

```
< '( @& " 81,")&,&'$!"&(6 )$" 8,#' $'( $8"&, ")& 2$++ '.
#8 ") + !" '# 5&,+#' +)$-- %$:&7 $ ( #, $++ +" ' %$: '.6 , @&
2,&+&'" 8#, ")& 51,2#+& #8 $ ( '. #, $++ +" '. ' ")& %$: '. #8 $'?
&$!#'6 #'8 ,&6 .)"6 ,&6 -$+)6 -$L&6 #, $'? .'$- @? %#:&6
#, @? $'? #!:&"6 ,&*#,:6 -$.6 8 , '. #8 $'? H1' #, #")&, ,&N
$,%+6 #, @? @-#* '. #8 #,'+6 #8 @? , '. '. 8 $'? )1,!)6 )$2&-6
#, #")&, &--6 #, @? $'? #")&, #'", 4$'!& #8 3&4 !&6 8#, ")& 51,2#+&
#8 . 4 '. $>e7 #" !&= #, '" %$" #' "# $'? 5&,+#' #, 5&,+#'+ &'N
.$.&( '$'? --&.$- #%@ '$" #'6 #,A '$'? ++#! $" #' #, ++&%@-?
A M M $.$ '+"
```

```
B 2] #4 2#6
D2H # /
3"D/ 4#27!
/ 4 F #4
#3 O 23 #
3 +D/E #E
D#424DG #
2#6 EED O O76
242 #E3 3"D %
+/ F E #E !
"D/D .! /
```

T ' L B ' ' (2C

) 3 HD'3 ' 2#6' +D/E #E' 3 ' 2EED O O7D' 3 ' 3"DD#G2#4D/ ' #4' .' 3"D' + I O7 H' +D2HD!' 2' B EGD^ OD2# /

$.$ '+"")&' 5,#4 + #'+' #8'") +' !"7 $'(' ")$"W'#' 5&,+#"' +)$--' %$:&' #,' . 4&6' #,' $++ +" '' ")&' %$: '.' #,' . 4 '.6' #,' @&' 2,&+&'" 8#,' ")&' 51,2#+&' #8' $++ +" '.' '' ")&' %$: '.' #,' . 4 '.' #8' $'?' ` ' !)' .'$-6' #,' #8' $'?' #")&,' .'$-6' #" !&6' #,' $--6' "#' #,' 12#"' $'?' 5&,+#"' #,' 5&,+#'+' *)$"+#&4&,' "2' $++ %@-&' "#.&")&,6' #,6' "2' $!" '' !#'!&," "#.&")&,6' 8#,' $'?' 51,2#+&' '#" *$,8$'"&7R@?' $*6' 28' *) !)' +' 2,#) @ "&(' @?' ") +' !"6' #,' "#' $++&%@-&' '' ,,$+6' #,' '' 1'C+1$-' 1%@&,+6' $'(' $" 1'1+1$-' %&+' $'(' 5-$!&+6' "#' ")&&1($2.&, '.' #8' ")&' 51@- !' 5&$!&' $'(' 8' $'?5&,+#'6' !#'",$,?"#")&",1&' '"&'" $'(' &$' '.' #8'") +' !"6' +)$--' %$:&' / !$1+&' "#' @2' %$(&6' #,' $ ('#,' $++ +" '' ")&' %$: '.6' #,' @&' 2,&+&'" 8#,' ")&' 51,2#+&' #8' $++ +" '.' $" ")&' %$: '.' #8' $'?' +1!)' .'$-6' #" !&6' #,' $--' "#' #,' 12#"' $'?' +1!)' 5&,+#"' 5,' 5&,+#'+' $+' $8#,&+$ (6' #,' 8#,' $'?' +1!)' 51,2#+&' $+' $8#,&+$ (6' +1!)' 5&,+#"' +#' #88&'('.' +)$--' @&' .1 -"?' #8' $' +(&%&$'#,' $'(' &4&,?' +1!)' "8&'!&' !#%% ""&(' * ") '' $'?' 3 +", !"2,#!-$ %&(' ''21,+1$'!&' #8'")&' 5,#4 + #'+' #8'") +' !"+)$--' @&' !#.' L$@-&' @?' $'?' #1," $,"$-' $22# '"&(' 1'(&,' ") +' !"6' $'(6' 8' !#%% ""&(' * ") '' $'?#")&,' 3 +", !"6' +)$--' @&' ", &(' $(('21' +)&(' $!!#,('.' "#'")&' #1,+&' 28'")&' #%%#"' $*6' $'('"#' #")&,* +&

' ..D#HDE' Z 3" #' 2' C/ ^ H72 ODG' * E^ 3/ H3' 3 ' OD' H 4# d2O7D'O6' 2' (I/3' B2/^ 3 27' N #' 2#6' 3"D/!!'O6' (O O #' 2Z

) 3" #4'G #D' #' C I /E I 2#HD' .' 3" E' H3' #' 2#6' C/ ^ H72 ODG' * E^ 3/ H3' 3 ' OD' \ I DE3 #2O7D' #' 2#6' (I/3 ' .. HD/E!' H' 2H3 #4' #' C I /^ E I 2#HD' .' E I H"' + ZD/' /' I3" / 36' ' E"27' OD' /D^ EC #E O7D' #763 ' (I/3E' B2/3 27

< ' '(' @&' "&'$!"&(A')$" '#' !"6' $""&,6' #,') '.' (#'&' '' $'?' +1!)' 2,#!-$ %&(' 3 +", !"$+' $8#,&+$ (6' '' 21,+1$'!&' #,' &9&!1B' 6 "#"' #8' $'?' 5#*&,' ,' 1")#, "?')&,&@?' !#'8&,,&(6' +)$--' @&' C1&+" #'&(' '' $'?' #1," #8' ")&' V' "&(' D '.(#%')$4 '.' R1, +(!"#'6' 4-' #,' , % '$-6' &9!&2" $+')&,& 'B$8"&,' %&'" #'&(' ' ")$"6 +' "#' +$?6' ")$" $-- 88 !&,+6' #'B!#%% ++ #'&(' 88 !&,+6' $'(' #-(&,+' *)#' +)$--' $!" 1'(&,' $'?' +1!)' 5#*&,' #,' 1")#, "?' +-":V6' 8#,' $'(' '' ,&+2&!" #8' $'?") '.' (#'&' 1'(&,' +1!)' 5#*&,' #,' 1")#, "?6' '' $'?+1!)' 2,#!-$ %&(' 3 +", !" $+' $8#,&+$ (6' @&' ,&+2#'+ @-&' "#' #1,"+' $,"$-' "#' @&')#-(&'' 1'(&,' $'?' "$"1"&' '' 8#,!&' 8#,' @#-('.' #1,"+' $,"$-6' @?' *) !)' #1,"+' $,"$-' ,&+2&!" 4&-?' ")&?' +)$--' @&' - $@-&' "#' @&' ", &(' $'('21' +)&(' 8#,' $'?' 88&'!&' $.$ '+"")&' ," !-&+' #8' E$,' 1'(&,' $'?' $*' ")&'' '' 8#,!&' 8#,' +1!)' 51,2#+&+' $'(' +1!)' #1,"+' $," $-' ,&+2&!" 4&-?' +)$--')$4&' 81--' $'(' &9!-1+ 4&' #.' L$'!&' #8' $-- +1!)' $""&,+' $'(') '.+' *) !)' +)$--' @&' #@>&!"&(' $.$ '+"' +1!)' 88 !&,+6' #1B!#%% ++ 2'&(' 88 !&,+6' $'(' #-(&,+' ,&+2&!" 4&-?6' $'(' 5,#!&&('.+' +)$--' @&')$(' ")&,&#"' '' ")&' +$%&' $''&,' $+' 8#,' 88&'!&+' $.$ '+"' ")&' ," !-&+' #8' E$,6' $'(' '#" #")&,* +&' $'(' '#' #")&,' #1," '' $'?' 5$,"#8' ")&' V8 "&(' D '.N (#%6' *)&")&,' 4-' #,' , % '$-6')$--')$4&' #.' L$'!&' #,' R1, +(!"#"' * ")' ,&+2&!" "#' $'?' !"6' $""&,6' #,') '.' *) !)' +)$--' @&' (#'&' @?' $'?' +1!)' 88 !&,6' #'B!#%% ++ #'&(' 88 !&,6' #,' #-(&,6' ''21,+1$'!&' #8' ") +' !"6' $'?' +1!)' 2,#!-$ %&(' 3 +", !" $+' $8#,&+$ (' ' $'(' $'?' 5,#!&&('.' '+" "1"&(6')$(6' #,' !#%%&'!&(' '' $'?' +1!)' #1," $+' -$+" %&'" #'&(6' $.$ '+"' $'?' 88 !&,6' #'B!#%% ++ #'&(' 88 !&,6' #,' #-(&,6' 8#,' #,' @?' ,&$+#"' #8' $'? +1!)' !"6' $""&,6' #,') '.6' A*)&")&,' @?' '(!"%&'"6' !"#'6' ' #")&,* +&6' +)$--')&' +"$?&(' @?' +1%%$,?' 22- !$" #"' "#' ")&' #1," '' *) !)' ")&' +$%&' +)$--')$4&' @&&'' '+"N "1"&(6')$(6' #,' !#%%&'!&(' ' $'(' ")$" $--' R1+" !&+' #8' ")&' 5&$!&6' #'N +"$@-&+6' 5#- !&%&'6' $'(' $--';#")&,' 5&,+#'+' @&+ (&+' 88 !&,+6' #'N !#%% ++ #'&(' 88 !&,+6' $'(' #-(&,+6' *)#' +)$--' $!" 1'(&,' $'?' +1!)' 5#*&,' #,' 1")#, "?6' 8#,' $'(' '' ,&+2&!" #8' $'?' ") '.' (#'&' 1'(&,' +1!)' 5#*&,' #,' 1")#, "?' '' $'?' +1!)' 2,#!-$ %&(' 3 +", !" $+' $8#,&N +$ (6' +)$--' @&' - $@-&' "#' @&' 2,#+&!1"&(' '' $'?' #1," #8' , % '$-' R1, +(!"#"' 1'(&,' ")&' E$,,$'" #8' +' $>&+"?;+' ""#,'&?' H&'&,$-' 8#,' ' $'(' '#" #")&,* +&66' $'(' @& '.' +#' 2,2+&!1-&(' +)$--' @& ' '2,#!&&(&(

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2,#!&&(&(' $.$ '+" $'(' 21' +)&(' 8#,' +1!)' 88&'!&' $!!#,('.'"#' ")&'
#1,+&' #8' ")&' #%%#' $* ' a'

' '(' @&' "&'$!"&(6')$" '' $+&+' *)&,&' $'?' 5&,+#'' #$/E #E' 2/^
5&,+#'+' +)$--' (1, '.'")&' #'" '1$'!&' #8' ") +' !-' @&' $,,&+"&(6' !#%N /DE3DG' O26'
% ""&(6' #,' (&"$ '&(' '' 1+"#(?' @?' 8#,!&' $'?WE$,,$'' ++1&(' 1'(&,' OD' GD32 #DG'
")&' 1")#, "?' #8' ") +' !"6' #,' @?' $'?' 5&,+#'')&,&@?' &%2#*&,&(' '' #' 2#6' +72HD'
")$" &)$-86' " +)$--' $'(' %$?' @&' -$*81-' 8#,' $'?' 5&,+#'' #,' 5&,+#'+' Z 3" #' /D^
+#' $1")#, L&(' #,' &%2#*&,&(' "#' (&"$ '' +1!)' 5&,+#'' #,' 5&,+#'+' +#' 72#G!' O I3' # 3'
$,,&+"&(' #,' !#%% ""&(' '') +' #,'")&,' 1+"#(?' '' $'?' 5-$!&' *)$"&4&,' #' 2#6' 3"D/'
* ") '' k,&$*('K 5,#4 (&('$-*$?+6' ")$" '#' 5&,+#'' +#' $,,&+"&(' +)$--' @&' +72HD' 3"2#' 2'
(&"$ '&(' '' $'?2-$!&' #8' 1+"#(?' #")&,' ")$'' +#%&' 21@- !' H$#-' #,' C I O7 H' 2 7'
5, +#'' %#,&' ")$'' *&'"?B8#1,' #1,+' 8,#%' ")&' %&' #8') +' ,,&+"6' /' +/ E #'. /'
* ")#1") +' #*'' #'+&'"A O /D' 3"2#'
'3, .3/E

' '(' @&' "&'$!"&(6')$" &4&,?' 5&,+#'' *)#' +)$--' :'#* ' .-?' 5&,+#'+' '
$'(' !#,,12"-?' +*&$,' 8$-+&-?' '' $'?' 4 (&'!&' . 4&'' @?' +1!)' 5&,+#'' +*&$, '.'
@&8#,&' $'?' #1," !#'+" "1"&(' #,'$!" '.' 1'(&,' ")&' 1")#, "?' #8' ") +' -O+&-?-$@-&
!" +)$--' @&' GDDODG' $'(' $(>1(7+(' "#' @&' .1 -"?' #8' ")&' , %&' #8' R&&+
* -81-' $'(' !#,,12" 5& >1,?6' $'(' +)$--' 12#'' #'4 !" #'' ")&,&#8' @&' >1,?6'
- $@-&' "#' $--' ")&' 5&'$-" &+' $'(' 51' +)%&'"+' '#*' @?' $*' '! (&'" "#
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' '(' @&' " &'$!"&(6')$" 8' $'?' 5&,+#'' *)#' +)$--' @&' @"23' E"27'
(&"$ '&(' '' 1+"#(?' 1'(&,' ")&' 5#*&,+' !,&$"7' @?' ") +' !"6' !)$,.&(' 3D 2'E I . . H D#3'
* ")' $'?' 88&'!&' !#%% ""&(' '' $'?' 2,#!-$ %&(' 3 +", !" $+' $8#,&+$ (6' 8' $@&$+^
+)$--' +1&' 8#,")' $' E , " #8' $@&$+' #,21+' * ") ''),&&' $-&'($,' (/C I E' E I DG'
#'")+' 8,#%' ")&' %&' #8' @ +' 8 ,+" ,,&+"6' " +)$--' @&' $' .##(' $'(' I 3' O6' 2' +D/ '
+188 ! &'" &"1, ''"#' +1!)' E , " ")$" ")&' 5$,"?' +1 '.' 8#,")' ")&' +$%&' +' E #' GD32 #DG'
(&"$ '&(' 7' 4 ,"1&' '")&' 5#*&,+' '' ")$" &)$-8')&,&@?' !#'8&,,&(6' $'(' AAA
*)&'' +1!)' &"1, '' +)$--' @&' %$(&' " +)$--' '#" @&' '&!&++$,?' "#' @, '.' 12
")&' 2(?' #8' ")&' 5&,+#'' +#' (&"$ '&(

' '(' @&' " &'$!"&(')$" '#' R1+" !&' #,' R1+" !&+' #8' ")&' .7.D#HDE'
5&$!&6' +$4&' $+')&,& 'B@&8#,&' 2,#4 (&(6' +)$--')$4&' $'?' 5#*&,' #,' 1")#N I#GD/'3" E' H3'
, "?' "#' $(% " "#' $-' $'?' 5&,+#'' !)$,.&(' E ")' $'?' 88&'!&')&,&@?' # 3' O2 72O7D
%$(&' !#.' L$@-&' @?' $'?' #1," $," $-' $22#' '"&(' 1'(&,' ")&' 5,#4 N
+ #'+' #8") +' !"] 5,#4 (&('$-*$?+6' ")$" '#' 5&,+#'' +)$--' @&' (&"$ '&(' +D/E #E'
'' 1+"#(?' @?' 4 ,"1&' #8' ")&' 5#*&,+' !#'"$ '&(' '' ") +' !" 8#,' $' -#' .&,' 2//DE3DG' 3 '
%&' ")$''),&&' $-&'($,' #'")+' 8,#%' ")&' %&' #8') +' 8 ,+" ,,&+"6' OD' O/ I%N"3' 3 '
* ")#1" @& '.' @,#1.)" "#' , $-' 8#,' ")&' 88&'!&' #,' 88&'!&+' ' *) !)' / 27' Z 3" #'
)&' +' +#' (&"$ '&(' '' 1+"#(? ' B #3"E

' '(' @&' " &'$!"&(6')$" '' $--' $+&+' *)&,&' $'?' 88&'!&' >2/G' 2O I/'
!#%% ""&(' * ") '' +1!)' 3 +", !" 2,#!-$ %&(' $+' $8#,&+$ (' +)$--' @&' O26' OD' 2GGDG'
21' +)&(' * ")' %2, +#'%&'" 1'(&,' ") +' !"6' #,' @?' $'?' #1," 7.'78# !&,B'
$1"@#, L&(' 1'(&,' ")&' 5,#4 + #'+' ")&,&#86' #")&,' ")$'' $'(' &9!&2" $'?' "&@ 88&'!&+-'
88&'!&' !,&$"&(' @?' ") +' !" 8#,' @& '.' 2,&+&'" $" $'?' 1'-$*81-' +N
+&%@-?6' " +)$--' $'(' %$?' @&' -$*81-' 8#,' +1!)' #1," "#' #,(&,' $'('
$*$,(6' 8")&?' +)$--' +#' ") ':'8 "6' ")$"6' '$(("#'' "#' ")&' %2, +#'%&'"
")&,&@?' (,&!"&(6' ")&' 5&,+#'' !#'4 !"&(' +)$--' @&' :&2" "#')$,(' $@#1,'
B(1, '.'")&' E)#-&' #,' $'?' 5$," #8")&' 5&, #(' "#' *) !)' +1!)' %2, +#'N
%&'" +)$--' &9"&'(

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&DHI3 # .' H3' Z 3" #' (I#3 DE' .' (3 DE'MD&HDC3 #' * IO7 #P!'

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+ ZD/E' 4 FD#' 3 ' B24 E^ 3/23DE' .' ' (I#3 DE' 3 ' D&3D#G' 3 ' 3" ED' .' Z#E!' /' (3 DE

< ' '(' @&' 8'&'$ 8&(6')$" $--'")&' 5#*&,+'$'(' 1")#, "&+ . 4&"' "#' $'(' $--' 5'" &+' ,&C1 ,&(' 8,#%' $. +",$"&+' #8' #1'" &+' $" -$,.&6' 1'(&,'$'('@?'< ,"17#"") +' !"6'+)$--' @&' $'('$,&')&,&@?' . 4&'; "#'$'(' ,&C1 ,&(' 8,#,2' $--' $. +",$"&+'#8' #1'" &+'#8' #*'+'#,' #1'N "&+'#8' "&+' '' ' ")& ,' ,&+2&!" 4&' #1'" &+'#8' #*'+'#, #1'" &+'#8' "&+

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#'H2ED' .' D/G H3' . /' *D.D#G2#3!' 3"D' , IG4D' O26' HD/3 .6' 3"23'3"D' H3' H OC72 #DG' .'Z2E' G #D' O6' F /3ID' .' 3" E' H3!' 2#G' 3"D' *D.D#^ G2#3' #' 3"23' (2ED' 277 ZDG' " E' /DO7D' (E3E

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*)# +)$-- '&.-&!" #, ,&81+&6 *)&' 22- !$" #' + %$(& "#) % 8#, ")$"
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$!!1+&(#8 $'? $2 "$- , %&6 #, #8 $'? < #-&'!& #, 88&'!& $.$ '7
")& 5&,+#'6 +"$"&6 #, 5,#2&,"? #8 $'? #8 + $>&+"?;+ 1@>&!"+6
) !) + 21' +)$@-& @? ")& :'# $*+ #8")& $'(6 #, +)$-- * -81--?
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H !$+) &,&(6 $'(+)$-- @& 1""&,-? (+$@-&("#)$4& #,
)#-($'? 4 - #, - "$,? 88 !& , %2-#?%&'" * ") ")& V' "&(
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2,&'" !&[ʼ &'- +"&(ʼ '"#ʼ +ʼ $>&+"?;+ʼ &,4 !&ʼ $+ʼ 2ʼ #-(&,ʼ +)$--ʼ @&ʼ 3 ʼOD'32]D#!ʼ
- $@-&ʼ "#ʼ @&ʼ $,,&+"&('#,ʼ "$:&'ʼ ")&,&8,#%6ʼ @?ʼ ,&$+#'ʼ #8ʼ ")&ʼ=E$,,$'ʼ #8
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+&,4&ʼ #,ʼ *#,:ʼ 8#,ʼ $'?ʼ %2-#?&,ʼ>ʼ $'(ʼ '#ʼ 5&,+#'ʼ &'- +"&(ʼ $+ʼ $ʼ #-(&,6ʼ 4%(&"ʼ
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+#&4&,6ʼ #")&,ʼ ")$'ʼ 8#,ʼ +#%&ʼ , % '$-ʼ $""&,6ʼ 1'-&++ʼ $'ʼ 88 ($4 "ʼ
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+1!)ʼ 5,#!&++ʼ #,ʼ 9&!1" #'ʼ +)$--ʼ ++1&6ʼ #,ʼ @&8#,&ʼ +#%&ʼ 5&,+#'ʼ $1")#N
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,$'(1%ʼ +)$--6ʼ * ")#1"ʼ &&6ʼ @&ʼ &'(#,+&(ʼ 12#'ʼ ")&ʼ $!:ʼ #8ʼ +1!)ʼ
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*) !)ʼ ")&ʼ +$%&ʼ +)$--ʼ @&ʼ .,#1'(&(ʼ $'(ʼ $'?ʼ R1(.&ʼ #8ʼ +1!)ʼ #1,"6ʼ
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!#4&,?ʼ ")&,&#8ʼ ")&ʼ - :&ʼ &%&(?ʼ $+ʼ *#1-(ʼ)$4&ʼ @&&'ʼ $22- !$@-&ʼ "#ʼ ")&ʼ
&!#4&,?ʼ #8ʼ $'?ʼ #+"+ʼ *) !)ʼ % .)ʼ)$4&ʼ @&&'ʼ $*$,(&(ʼ $.$ '+"ʼ ")&ʼ 7
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E , " '.ʼ "#ʼ $'?ʼ #-(&,6ʼ #,ʼ -&8"ʼ $"ʼ) +ʼ -$+"ʼ 5-$!&ʼ #8ʼ &+ (&'!&ʼ @&8#,&ʼ
+1!)ʼ +" '.6ʼ %$?ʼ 8 -&ʼ $ʼ #%%#'ʼ 22&$,$'!&ʼ 'ʼ $'?ʼ !" #'ʼ "#ʼ @&ʼ
@,#1.)"ʼ 8#,ʼ #,ʼ 12#'ʼ $!!#1'ʼ #8ʼ $'?ʼ 3&@"ʼ *)$"+#&4&,6ʼ $'(ʼ 2,#!&&(ʼ
")&,&ʼ 'ʼ "#ʼ R1(.%&'ʼ $'(ʼ 1"-$*,?6ʼ $'(ʼ)$4&ʼ 9&!1" #'ʼ #")&,ʼ ")$'ʼ
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#,!&+6ʼ *) !)ʼ ," !-&+ʼ+)$--ʼ @&>1(! $--?ʼ "$:&'ʼ '#" !&ʼ #8ʼ @?ʼ $--ʼ R1(.&+6ʼ 7$,')'!#'Bʼ
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+$%&ʼ +)$--ʼ)$4&ʼ @&&'ʼ %$(&ʼ $'(ʼ &+"$@- +)&(ʼ @?ʼ +ʼ $>&+"?6ʼ @&ʼ ",$'+Bʼ 6
% ""&(ʼ @?ʼ +ʼ $>&+"?;+ʼ &!,&"$,?ʼ $"ʼ E$,6ʼ + . '&(ʼ *")ʼ) +ʼ #*'
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/ * ' ' " ' T ' . " ' ,&+2&!" 4&-?6ʼ $'(ʼ $-+#ʼ "#ʼ ")&ʼ
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2#,"&(ʼ $+ʼ $ʼ &-#'6ʼ #,ʼ "#ʼ +188&,ʼ $'?ʼ 51' +)%&'ʼ &9"&'(' . ʼ "#ʼ 8&ʼ #,ʼ
%@6ʼ &9!&2"ʼ 8#,ʼ , %&+ʼ *) !)ʼ $,&ʼ @?ʼ ") +ʼ !"ʼ &92,&++-?ʼ %$(&ʼ
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'#,' +)$--'@&' 21' +)&(' ''$'?' $''&,'#,'1'(&,'$'?' &.1-$"#'+' *) !)'
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<' '('@&' '' &,&!"&(6')$"' +' $>&+"?'%$?' 8,#%' %&' "#' %& .,$''' $' #%% ++ #'6' -'(&,A- -&' #?$-' .'' $% $@' 8#,' ")&')#-('.' #8' H&'&,$-' #1,"+B%$," $-' * ") '6")&' BV' "&(' D '.(#%' #8' ' ('$'(' ' ''- :&' $''&,'$+')$+'@&&'')&,&"#8#,&' 1+&('>' $'(' ")$'' 8#,'@, '. '.' 88&'(&,+'$.$ '+'' ")&' ," !-&+' #8A E$,'"#' R1+" !&' '' +)$--' @&' -$*81-' 8#,' +' $>&+"?' "#' &,&!'' $'(' !#'+" "1"&' #1,"+B%$," $-' * ") '' ")&' V' "&(' D '.(#%' #8' ' ('$'(' '$+' *&--'$+' "#' .,$''' +' #?$-' #%% ++ #'+'#,' E$,,$''+' "#' ")&') &8' H#4&,'#,' #,' H#4&,'#,+' #8' ' ")&' #%%$'(&,'#8' ")&' #,!&+6' #,' ")&' 5&,+#'' #,' 5&,+#'+' !#%%$'('.' '' !) &86' #,' !#%%$'('.' 8#,' ")&' %&' @& '.6' $'?' #(?' #8' +' $>&+"?;+' #,!&+6' $+' E&--' * ") '' ")&' V' "&(' D '.(#%' #8' ' ('$'(' '$'(") ' (' +-&+6' $+' '' $'?' #8' +' $>&+"?;+' H$,, +#'+'$'(' 3#% ' #'+'#,'&-+&*)&,&' @&?#'(' ")&' &$+6' 8#,' !#'4&' '.6' $+' *&--'$+' 8#,' $1")#, L '.' $'?' 88 !&,'1'(&,' ")& ,' ,&+2&!" 4&' #%%$'(6' '#'' @&-#*' ")&' 3 7&&' #8' $' &-(' 88 !&,6' "#' !#'4&'&' #1,"+B%$," $-6' $+' !!$+ #'' %$?' ,&C1 ,&6' 8#,' ")&' , $-' #8' 88&'!&+' !#%% ""&(' @?' $'?' #8' ")&' #,!&+' V'(&,' ")& ,' +&4&,$-' #%%$'(6' *)&")&,' ")&' +$%&' +)$--')$4&' @&&'' !#%% ""&(' @&8#,&' #,' $8"&,' +1!)' 88 !&,'+)$--')$4&' "$:&'' 12#'') %+&-8'+1!)' #%%$'(' $'(' $'?' 5&,+#'' +1@>&!'' "#' ") +' !"6' *)#' +)$--' '' $'?' #8' +' $>&+"?;+' 3#% ' #'+' @&?#'(' ")&' &$+'#,'&-+&*)&,&' !#%% '' $'?' #8' ")&' 88&'!&+' 8#,' *) !)')&' %$?' @&' - $@-&' "#' @&' ", &(' @?' #1,"+B%$," $-' @?' 4 ,"1&' #8' ") +' !"6' %$?' @&' ", &(' $'(' 21' +)&(' 8#,' ")&B+$%&' ''$'?' #") &,' 5$,'' #8' +' $>&+"?;+' 3#% ' #'+' *)&,&')&' %$?')$4&' !#%&' $8"&,' ")&' #%% ++ #''#8' ")&' 88&'!&6' $+' 8' ")&' 88&'!&' @$(' @&&'' !#%% ""&(' *)&,&' +1!)' , $-' +)$--' "$:&' 2-$!&' M

#%2#+ "#'' #8' H&'&,$-' #1,"+B%$,N "$-

<' '('@&' '' &'$!"&(')$"' $' H&'&,$-' #1,"B%$," $-' !#'4&'&(' ' $'?' 5$,'' #8' ")&' D '.;+' 3#% ' #'+6' Y(* ' ")&' (* ' ' $'(' 9 $' ' / ' &9!&2"&(6[' #,' '' ")&' &""-&%&''+' #8' ")&' (' R*(8#' #%2$'?6' +)$--' !#'+ +'' #8' '#'' -&++' " $$') ,"&&'' #%% ++ #'&(' 88 !&,+' 8' !#'4&'&(' '' (* '#,' ")&' (* '#,'#1'' #8' ")&' D '.;+' 3#% ' #'+6' &9!&2" '.' ' $'(' 9 $' ' 5/ ' +)$--' !#'+ +'' #8' '#'' -&++' ")$'' &4&'6' $'(' '' '$'(' 9 # ' ' / ' #8' '#'' -&++' ")$'' 4&' #%% ++ #'&(' 88 !&,+' ' $'(' '#' R1(.%&''' #8' 3&$")' +)$--' 2$++' * ")#1'' ")&' #'!1,,&'!&' #8' * #') ,(+'$''")&' :$+'' #8' ")&' 88 !&,+' 2,&+&'' ' $'(' ")&' 5,&+ (&''' +)$--' '' '#' $+&' @&' ")&' 88 !&,' !#%%$'(N '.' '' !) &8' #,' H#4&,'#,' #8' ")&' H$,, +#'' E)&,&' ")&' 88&'(&,' +)$--' @&' ", &(6' '#,'1'(&,' ")&' 3&.,&&' #8' $' 7(' 88 !&,6 ,%-&++' *)&,&' $' &-(' 88 !&,' !$' '#' @&')$(6' '#,' '' $'?' $+&' *)$"+#&4&,' 1'(&,' ")&' 3&.,&&' #8' $' $2"$ '' K

5# * &,+' #8' H&'&,$-' #1,"+B%$,N "$-

<' '('@&' '' &'$!"&(')$"' $' H&'&,$-' #1,"B%$," $-' %$?' +&'N "&'!&' $'?' #-(&,' "#' %2, +#'%&''6' +#- "$,?' #,' #")&,* +&6' $'(' *") #,' * ")#1"')$,(' $@#1,6' '' $'?' 21@- !' 5, +#'6' #,' #")&,' 5-$!&' *) !)' ")&' #1,"6' #,' ")&' 1")#, "?' !#'8 ,%' '.' ")&' &'"&'!&6' %$?' $22# ''6' #,' "#' #,2#,$-' 51' +)%&''6' '#'' &9"&' ('.' "#' - 8&' #,' %@A' 8#,' %%#8#B' - "?6' +@&)$4 #1,6' $'(' &.-&!''#8' 3 1"?' $'('$' H&'&,$-' #1,"B%$," $-' %$?6' '' $((" #'' "#' $'?' +1!)' 51' +)%&'' $+' $8#"&+$ (_' &'"&'!&' $'? 88&'(&,

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5&'+#'"#'6' 3 +!)$,.&' $'('*)&'+#&4&,'$'?'H&'&,$-' #1,"''$," $-'@?
*) !)'$'?' #-(&,'+)$--')$4&' @&&'' ", &('$'('!#'4 !"&('#8'$'?' 88&'!&'
21' +)$@-&'*")' R&$")'+)$--'#'"") ':'")&O 88&'X7' (&+&,4 '.'#8' $2"$-'
51' +)%&'"6'+1!)' #1,@%$," $-' %$?6' '+"&$('#8'$*$,('.'$' #,2#,$-'
51' +)%&'"' 2,' ,12, +#'%&'"6' $(>1,&' ")&' 88&'(&,6' $!!#,('.' "#'
")&' 3&.,&&'#8'")&' 88&'!&6' "#'@&' ",$'+2#,"&('$+'$' &-#'' 8#,' 8&' #,'
8#,'$' !&,"$'' &,,$'#8' &$,+6' #,'%$?'+&'"&'!&')%' "#'.&'&,$-' &,4 !&'
$+'$' #-(&,' '$'?' #,2+' $'(' '$'?' #1'",?'#,' 5-$!&' *) !)' +'
$>&+"?'+-%--")&,&12#' (,&!"6' #,'%$?6' 8'+1!)' 88&'(&,'+)$--')$4&'
&'-+"&('8#,'$'V%"&"-' &,%'#8' &$,+6' +&'"&'!&')%' "#' +&,4&' 8#,' 8&'
$+'$' #-(&,' '$'?' #,2+' *) !)' +' $>&+"?'+)$--' 2-&$+&' "#' (,&!">'
$'(")&' #1," %$?6' '$(("#' "#' $'?'#")&,' 51' +)%&'"6' +&'"&'!&'
+1!)' 88&'(&,'"#'8#,8&"$--' (4$'"$.&'$+'"#' '!,&$+&'#8'5$?6' #,'$+'"#'
5&'+#'"#'3 +!)$,.&6' *) !)'% .)" ")&,*+&')$4&' $!!,1&('"#' +1!)'
88&'(&,' 2,#4 (&('")$"' '$--'' $+&+' *)&,&'$' $2"$-' 51' +)%&'"
+)$--')$4&' @&&'' $*$,(&('@?' $'H&'&,$-' #1,"B%$," $-6' " +)$--' @&'
-$*81-' 8#,' +' $>&+"?6' #,6' 8' '")&' . ' 8#,' ")&' 88 !&,'
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88&'(&,'+)$--' @&-#'.6' '+"&$('#8'!$1+ '.'+1!)' &'"&'!&' "#' @&' !$,N
,&(' '"#' &9&!1"#'6' "#' #,(&,' ")&' 88&'(&,' "#' @&' ",$'+2#,"&('$+'$'
&-#'6' &")&,'8#,' 8&'#,'8#,'$' !&,"$'' &,%'#8' &$,+6' $+' +)$--' +&&%6'
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%$'('.' $+' $8#,&+$ (' $'(' 8'$'?' 5&,+#'' ",$'+2#,"&(' $+' $' &-#'6'
*)&")&,' '21,+1$'!&' #8' ")&' #, . '$-' &'"&'!&' #8' ")&' #1,"B%$," $-6'
#,' '21,+1$'!&' #8'+1!)' ,(&,'8,#'>' +' $>&+"?6' #,'8,#%'+1!)' 88 !&,'
!#%%$'('.' '")&' . ' '$+' $8#,&+$ (6' +)$--' $8"&,*$,(+' ,&"1,'
,' @&' 8#1'(' $" -$,.&6' *")#1" &$4&' 8,#%' +' $>&+"?' #,' #")&,'
-$*81-' 1")#,"?6' *") ' $'?' 5$," #8' +' $>&+"?;+' 3#% ' #'+'
@,#$('#" $" #%&6' #")&,' ")$"' ")&' 5-$!&' "#' *) !)')&' +)$--')$4&'
@&&'",$'+2#,"&(6' @&8#,&' ")&' 92 ,$" #' #8' ")&' &,%'-% "&('@?'+1!)'
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3&$")'$+'$' &-#' ' M

A 77 ' '('@&' "&'$!"&(')$" &4&,?' 5$?%$+"&,'#,'#")&,' #%,$+B' /27'O6' D'
+#)&(' 88 &8#8' +' $>&+"?;+' #,!&+6' #,' $'?' 5&,+#'' &%2-#?&(' ' #D/27' (I/3'
")&' ,('$'!&'#,' #%% ++$, $" 3&2$,"%&'"6' #,' '$)?' $''&,' '")&'
$,&' #,' 3 +", @1" #' #8'$'?' #'&?6' 5,#4 +#'+6' #,$.&6' #,' "#,&+6'
*)#'+)$--' &%@&LL-&' #,' 8,$1(1-&'"-?' % +$22-?6' #,' @&' !#'!&,'&(' '#,'
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#8'$'?' #'&?6' 5,#4 +#'+6' #,$.&6' ,%+6' -#") '.6' %%1' "#'6' #,'
#")&,' -"$,?' "#,&+' @&-#'.' '.' "#' +' $>&+"?;+' #,!&+' #,' 8#,' +'
3+&6' %$?@&' ", &(' 8#,' ")&' +$%&' @?' $'H&'&,$-' #1,"B%$," $-6' *) !)'
%$?' $(>1(.&' $'?' +1!)' 88&'(&,' "#'@&' ",$'+2#,"&(' $+'$' &-#'' 8#,' 8&'
R,8#,'$'?' !&,"$' 'B &,,$' #8' &$,+6' "#' +188&,' +1!)' 51' +)%&'" #8'
'&6' %2, +#'%&'"6' 3 +% ++$-' 8,#%' +' $>&+"?;+' &,4 !&6' $'('
'!2! "?' #8'+&,4 '.' +' $>&+"?' ' $'?' 88 !&6' 4-' #,' -"$,?6'
$+'+1!)' #1," +)$--") ':'88"6' $!!#,('.' "#' ")&' $"1,&' $'(' 3&.,&&'#8'
")&' 588&7 !&'é $'('&4&,?' +1!)' 88&'(&,'+)$--6' '$(("#' "#' $'?'#")&,'U
51' +)%&'"6' %$:&' .##('$")+' #*' 92&'!&' ")&' #++'$'(' 3$%$.&'
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$)(")&' #++'$'(' 3$%$.&' +#' $+!&,"$ '&('$+' $8#,&+$ ('+)$--' @&' $' 3&@"
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'8#,%$" #'6' #%% "%&'"6' #,' &2#," $+' $8#,&+$ (6' +)$--' '' '#' $+&'
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,$1(1-&'" ' '(' @&' "&'$!"&(')$'" $'?' 5&,+#'' *)#' +)$--' 4#-1'"$, -?
(#.DEE #' .' (&- 4&,') %+&-8' 12' $+' $' 3&+&,"&,' 8,#%' +' $>&+"?;+' #,!&+' #,' ")&
DED/3 #' &%@#(&(' -"$6' #,' ")&' #,!&+' #8' ")&' ' 'F,8$ #%2$'?6' #,' *)#6'
12#'' @&' '.' $22,&)&'(&(' 8#,' $'?' 88&'!&6' +)$--6' '' ")&' 5,&+&'!&' #8'
")&' R1+" !&6' !#'8&++') %+&-8' 3' @&' $' 3&+&,"&,' 2E 2. /DE2 G! +)$--' OD
GDD O DG

(&&%&("#)$4&7 @&&' (1-? &'- +"&($'("# @& $ #-(&,6 $'(+)$-- @&
- $@-& "# +&,4& ' $'? #8 + $>&+"?;+ #,!&+6 $+ + $>&+"? +)$--
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&'- +"&($+ $ #-(&, #, '#" #, +)$-- @& - $@-& "j @& 21' +)&($+ $
#.1& $'(<$.$@#'(6 #, %$? @& 28@+& 1"Z($'(21' +)&(8#,
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,&!& 4 ' . 1@+ +"&'!& $+ $ #-(&, @? +1!) 5&,+#' +)$-- @& 4 (&'!&
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2, #, "# ># ' ' . ")& &. %&'" 8#, *) !))&)$+ &'- +"&(6 $'(*)# ED/3 #4 7 2O7D
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R1+" !& #8 ")& 5&$!& 12#' ")& 7" %#'? #8 '& #, %#,& E "'&++&+ #D2/DE3 =D4
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8&,,&(+)$-- '#" @& - $@-& "# #")&, 51' +)%&'" 8#, ")& 88&'!&6 '#,
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(IE3 G6' .' < ' '(' @&' " &'$!"&(6')$" ")&' H$#-&,' #,' 5&,+#'')$4 '.' ")&'
* DED/3D/E %%&($"&' '+2&!" #'' #8' $'?' 5, +#'6' H$#-6' #,' #1+&' #8' #,,&!" #'' '' &4&,?' 5$," #8' +' $>&+"?;+' 3#% ' #'+6' +)$--' (&'" $'(' +122-?' &4&,?' #-(&,' * ")' 1&-' $'(' #")&,' &!&++$, &+6' $!!#,('.' "#' ")&' &.1-$" #'+' #8' ")&' 5, +#'' "#' *) !)')&' +)$--' @&' !#%% ""&(6' $'(' +)$--' ,&!& 4&' #'' $!!#1'' #8' &4&,?' #-(&,6' (1, '.' ")&' 5&, #(' #8') +' %2, +#'%&'"6' 92&'!&' >I&,' ' ' *) !)' ")&' &!,&"$,?' $" E$,' +)$--' !$1+&' "#' @&' ++1&(' #1" #8' ")&' 1@+ +"&'!&' #8' +1!)' #-(&,6' 12#'' 22- !$" #'' '' E, " '.6' + .'&(' @?' $'?' R1+" !&' * ") '' *)#+&' R1, +(!" #'' +1!)' 5-$!&' #8' #'8 '&%&'" +)$--' @&' -#!$--?' + "1$"&(6' "#.&")&,' * ")' $' #2?' #8' ")&' ,(&,' #8' #%% "%&'"6' $'(' *) !)' 1%' 8' 92&'!&' 2&,' ' *' +)$--' @&' !$,, &(' "#' ")&' ,&("#8' ")&' 1'(' 8,#%' *) !)' ")&' 92&'!&' #8' +1!)' 5, +#' #,' #1+&' #8' #,,&!" #'' +' (&8,$?&(' $'(' +1!)' H$#-&,' +')&,&@?' ,&C1 ,&(' "#' ,&!& 4&' $'(' #'8 '&' &4&,?' 3&+&,"&,' *)#' +)$--' @&' (&- 4&,&(' '"#')' +' 1+"#(?' @?' $'?' #-(&,' !#'4&? '.' +1!)' 3&+&,"&,' 1'(&,' -$* 81-' 1")#, "?6' #'' 5,#(1!" #'' #8' ")&' E$,,$'" #8' ")&' R1+" !&' #8' ")&' 5&$!&' #'' *) !)' +1!)' 3&+&,"&,' +)$--')$4&' @&&'' "$:&'6' #,' +#%&' ,(&,' 8,#%' ")&' 88 !&' #8' ")&' &!,&"$,?' $" E$,6' #,') &8' H#4&,'#,' #,' H#4&,'#,+' #8' -' $'(' +1!)' H$#-&,' +)$--' @&' &'" "-&(' "#' '&') -- '.' 8#,' ")&' +$8&' 1+"#(?' #8' ")&' +$' 3&+&,"&,' *) -&')$-"&(' #'' ")&' $,!)6' $'(' "#' +1!)' 1@+ +"&'!&' 8#,')' +' $ '"&'$'!&' $+' +)$--' @&' (,&!"&(' @?' +' $>&+"?;+' &.1-$" #'+

) 3 HD' .' ' '(' @&' " &'$!"&(')$" &4&,?' H$#-&,6' "#' *)#%' $'?' 06/ E,#'' #" !#' +)$--')$4&' @&&'' .4&'' ")$" $'?' 5&,+#'' '')+' 1+"#(?' 8#,' $'?'
O'D#3 T88&'!&' +' $' #-(&,' -$@-&' "#' +&,4&' +' $>&+"?' #'' ")&' 92 ,$" #'' #8')+' %2, +#'%&'"6' +)$--' .4&' '&' #'");+' #" !&' #8' ")&' 5&, #(' #8' +1!)' 92 ,$" #'' #8' %2, +#'%&'"6' #,' 8' ")&,&' +)$--' '#" @&' +188 ! &'" %&' 8#,' $' #'");+' #" !&6' ")&'' ")&' -#'.&+" 2,$!" !$@-&' #" !&' ")&,&#87' "#' ")&' &!,&"$,?' $" E$,6' #,6' 8' *' ' "#' ")&') &8' M &!,&"$,?' ' M

+D/E #E'EIO^ ' '(' @&' " &'$!"&(')$" $--' ")&' 5,#4 + #'+' #8' ")' +' !"
5DH3' 3 '3" E' +)$--' $22-?' "#' $--' 5&%#'+' &%2-#?&(' #'' ")&' &!,1 " '.' &,4 !&' H3! ,&!& 4 '.' 5$?' '' ,&+2&!" #8' +1!)' &,4 !&6' $'(' "#' ")&' #,!&+' #8' ")&' . ' ' #%2$'?6' *) -&' ")&?' +)$--' @&' '' $'?' 5$," #8' ")&' V' "&(' D '.(#%6' $'(' 1'" -' ")&,' ,, 4$-' '' ")&' &,, "#, &+' #8' ")&' . ' ' #%2$'?6' $'(' "#' ")&' 88 !&,+' $'(' 5&,+#'+' '#4,' #,')&,&$8"&,' +&,4 '.' $'(') ,&(' "#' @&' &%2-#?&(' '' ")&' #?$-' ," --&,?' $'(' &-(' ,$ '6' $'(' $+"&,' H1''&,+' $'(' H1''&,+6' $'(' #'(1!"#,+' #8' "#,&+6' $'(' '' ")&' &. %&'" #8' #?$-' '. '&&,+' $'(' ")&' #,2+' #8' #?$-' $22&,+' $'(' '&,+6' $'(' '' ")&' #,2+' #8' #?$-' -"$,?' 1,4&?#,+' $'(' 3,$8"+%&'6' '' ")&' ,('$'!&' $'(' '' "-&' #%% ++$, $" 3&2$,"%% "+6' $'(' *)#' $,&' #,' +)$--' @&7+&,4 '.* ")+%?' 5$," #8' +' $>&+"?;+' #,!&+6' $" #%&' #,' @,#$(6' 1'(&,' ")&' #%%$'(' #8' $'?' 88 !&,')$4 '.' #%% ++ #'' 8,#%' +' $>&+"?6' $'(' $--' "#,&:& &2&,+' $'(' #")&,' 4 -' 88 !&,+' *)#' $,&' #,' +)$--' @&' &%2-#?&(' @?' #,' $!" 1'(&,' "-&' ,('$'!&' $" $'?' #8' +' $>&+"?;+ ,('$'!&' +"$@- +)%&'"+$" #,&.'' "$" #'+8 2,#4 (&(

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$+"#,>ʼ #,ʼ #")&,ʼ 88 !&,6ʼ #,ʼ ")& ,ʼ 1,&" &+6ʼ 8#,ʼ ")&ʼ (1&ʼ 5&,8#,%$'!&ʼ
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,##2+6ʼ @& ' .ʼ %1+"&,&($'(ʼ 'ʼ 5$?6ʼ *) !)ʼ +)$--ʼ @&ʼ ,$ +&(ʼ $'(ʼ +&,4 ' .ʼ / CEʼ #
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88 !&,ʼ)$4 ' .ʼ $'?ʼ #%% ++ #'ʼ %%&($"&-?ʼ 8,#%ʼ +ʼ $>&+"?6ʼ +)$--ʼ
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&'""-&(ʼ "#ʼ @&ʼ) --&""&" ʼ $'(ʼ &4&,?ʼ 5&,+#'ʼ *)#ʼ +)$--ʼ &'- +"ʼ $'?ʼ
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*)&'ʼ $'?ʼ 5&,+#'ʼ +)$--ʼ @&ʼ &'- +"&(ʼ $+ʼ $ʼ #-(&,ʼ 'ʼ +ʼ $>&+"?;+ʼ $'(ʼ
&,4 !&7ʼ)&ʼ +)8 V * ") 'ʼ #1,ʼ 3$?+6ʼ @1"ʼ '#" +##'&,ʼ ")$'ʼ *&'"?B8#1,ʼ
#1,+ʼ $8"&,ʼ +1!)ʼ '- +" ' .6ʼ $22&$,6ʼ "# . &")&,ʼ * ")ʼ +#%&ʼ 5&,+#'ʼ &%N
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2-#?&(' ' ")& &!,1 " '.7 &,4 !& &8")& 5$,"? * ") *) !))& +)$--
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#?$- 1,.)6 ,&+ ('. ' ")& < ! ' "?#8")& 5-$!&6 $'('$!" '. 8#,")&
3 4 + #' #, 3 +", 8 *)&"& 1!) &!,1 +)$--)$4& @&&' &'- +"&(6 $'(
'#" @& '. $' 88 !&, 9")& ,%? $'(8 +1!) &!,1 +)$-- (&!-$,&
) +)$4 '. 4#-1'"$, -? &'- +"&(6 ")& +$ (R1+" !& +)$-- 21 "#) % ")&
&4&,$- T1&+" #'+ !#'"$ '&(")& !)&(1-& "# ") + !"$''&9&(6 $'(
+)$-- ,&!#,('#, !$1+& "# @& ,&&#0;(&(6 ' E, " '.6) + '+*&,+ ")&9A&B
,$"# $'(")& +$ (R1+": & +)&,&@?6 ,&C1 ,&(8#,") * ") "# !$1+& ")&
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'#"* ")+"$'('. $'(")A +$ (R1+" !& +)&,&@? &C1 ,&("# . 4&6
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E"2?? @&-$*81- 8#, ")& 88 !&, #, #'B!#%% ++ #'&(88 !&, * ") *)#%
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< ' '(@& " &'$!"&(6)$"$'? &!,1 "$22&$, '. $+ $8#,&N
+$ (@&8#,A& +1!) R1+" !& +)$-- @& $" - @&9"? "# (&!-$,&) + 3 ++&'"
"# +1!) '- +" $.6 $'(12#' +1!) 3&!-$,$" #'6 $'(,&"19% '. ")&
= '- +" '. #'&?6 $'($-+# 2$? '. ")& 1,$ #8 *&'"?) -- '.+ 8#,
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@& 8#,") * ") (+!)$,.&($'(+&" $" - @&,"? ' ")& 5 &+&'!& #8 +1!)
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-&8 ")& 5-$!& *)&,& +1!) &!,1 " *$+ &'- +"&(66 #, ")$" ")& &!,1
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@&-#'. '. "# ")& &!,1 " '. 5$,"? &'" "-&(")&,&"# (&%$'('. ")&
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''")&' $")+' $'('   &,"8 !$"&+A' '' ")&'   !)&(1-&' "#' ") +'   !'' $''&9&(6'
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#,' 12#'') +' #*'' #'8&++ #'A' #,' 12#'' "-&' 5,#(1!" #'' #8' ")&'   ""&+B'
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"#' ")&'   #%%#'' H$#-' #,'   #1+&' #8'   #,,&!" #'6' ")&,&' "#' ,&%$ '' * ")#1''
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#,!&+6' #,' #8' ")&' .   '   #%2$'?;+'   #,!&+6'   '"#' *) !)')&' +)$--'
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3&+&,"&,' 8,#%' ")&'   #,2+' ''*) !)')&' +)$--')$4&' +#' &'- +"&(6' 8')&' +)$--'
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.&'" 8#, ")& 122-? #8 "#,&+ $'(5,#4 + #'+6 @? E , " ' . 1'(&,) + $'(6 ,&! " ' . +1!) ,(&, #8 + $>&+"? #, #,(&1"&'$'" #,) &8 H#4&,'#, $8#,&+$ (6 "# ,&C1 ,& $-- R1+" !&+ * ") ' ;")& , +&4&,$- R1, +(!" #'+ '' . $'(H ++1& ")& ,A E$,,$'"+ 8#, ")& 5,#4 + #'6 '#" #'-? #8 E$. .#'+6 E$ '+6 A" $,"+6 $'($,+ :&2" @? #, @&-#' . ' . " $'? 5&,+#'6 $'(8#, $'? V+& *)$"+#&4&,6 @1" $-+# #8 $((-& #,+&+6 #$!)&+6 5#+")$ +&+6)$ +&+6 $'(#")&, #1,B *)&&-&($,, $.&+ :&2" 8#, ,&6 $'($-+# #8 #$"+6 $, .&+6 $'(#")&, <&++&-+ 1+&(8#, ")& ,$'+2#," #8 $'? #%%#(" &+ *)$"+#&4&, 12#'' $'? $'$-6 #, $4 .$@-& 4&,6 $+ +)$-- @& %&'" #'&('' ")& +$ (E$,,$'"+6 ")&,& '' +2&! 8? ' . ")& 5-$!& $'(3 +"$'!& "# *) !) +1!) $,, $.&+ #, <&++&-+ +)$-- .# $'(#'' ")& 5,#(1!" #'' #8 +1!) &C1 N + " #'' "# +1!) R1+" !& @? $'? 88 !&, #8 ")& #,2+ #,(&,&("$ @& !#'4&?&(6 #, @? $'? 88 !&, #8 ")& #%% ++$, $" #, ,('$'!& 3&2$,"N %&'"6 +1!) R1+" !& +)$-- "$:& $-- ")& +$%& 5,#!&&(' .+ '' ,&.$,("# +1!) $(("#'$- 122-? +# ,&C1 ,&(#'' ")& +$ (%&,.&'!? $+)& +@? ") + !" ,&C1 ,&("# "$:& 8#, ")& #,('$,? 5,#4 + #'' #8 B $,, $.&+ $'($-- 5,#4 + #'+ *)$"+#&4&, #8 ") + !"6 $+ ,&.$,(+ ")& 2,#!1, ' . #8 ")& # ;('$,? 122-? #8 $,, $.&+6 $'(")& 31" &+ #8 88 !&,+ $'(#'N !#%% ++ #'&(88 !&,+6 R1+" !&+6 #'+"$@-&+6 $'(* '&,+ #8 $,, $.&+6 '' ")$" &)$-86 +)$-- @& "# $-- '"&'"+ $'(51,2#+&+ $22- !$@-& 8#, ")& 2,#4 (' . $'(5$?%&'"6 $!!#,(' . "# ")& $"& #8 5#+" ' . #, #8 ,& 1+1$--? 2$ (8#, +1!) #")&, 3&+!, 2" #'' #8 $,, $.&+ #, <&++&-+ +# ,&C1 ,&(#'' %&,.&'!?6 $!!#,(' . "# ")& &' .") #8 ")& R#1,'&? #8 <#?$.& '' &$!) $+&6 @1" %$: ' . '# --#*$'!& 8#, 5#+" #,+& 31"?6 #, 1,'2 :&6 $'$-6 4&,6 #, #!: #--+6 *) !) 31"? #, #--+ $,&)&,&@? (&!-$,&('#" "# @& (&%$'($@-& 8#, +1!) $,, $.&+ $'(<&++&-+ *) -& &%2-#?&('' +1!) &,4 !& #, ,&"1,' ' . ")&,&8,#% $'(" +)$-- @& -$*81- "# !#'4&? ")&,&#'6 '#" #'-? ")& $. .$.&6 5,#4 + #'+6 $'(- "$,? "#,&+ #8 +1!) &. %&'" #, 3&"$!)%&'"6 @1" $-+# ")& 88 !&,+6 #-(&,+6 &,4$'"+6 E#%&'6) -(,&'6 $'(#")&, 5&,+#'+ #8 $'(@&-#' . ' . "# ")& +$%&

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88&'!& @1" @&"*&&' ")& #1,+ #8 .)" #8 ")& -#!: ' ")& #,' '.
$'(#1, ' ")& 8"&,'##'6 &9!&2" ' $+&+ *) !) %$? ,&C1 ,& $''
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* E3/ H3ʿ /ʿ 2// E # (I/3E ʿ 02/3 2]

ʿ '(ʿ @&ʿ "ʿ &'$!"&(ʿ)$"ʿ $ʿ 3 +", !"ʿ #,ʿ H$,, +#'ʿ #1,"B%$,"$-ʿ +)$--ʿ !#'+ +"ʿ 8ʿ '#"ʿ -&++ʿ ")$'ʿ &4&'ʿ #%% ++ #'&(ʿ 88 !&,+6ʿ &9!&2"ʿ 'ʿ (* ʿ ʿ $'(ʿ 9 $ʿ ʿ / ʿ *)&,&ʿ "ʿ %$?ʿ !#'+ +"ʿ #8ʿ '#"ʿ -&++ʿ ")$'ʿ 4&ʿ #%% ++ #'&(ʿ 88 !&,+ʿ>ʿ $'(ʿ ")$"ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ +1!)ʿ #1,"6ʿ $-")#1.)ʿ $++&%@-&(ʿ 1'(&,ʿ ")&ʿ 1")#, "?ʿ #8ʿ $'ʿ !ʿ #8ʿ ")&ʿ 2,&+&'"ʿ &++ #'ʿ #8ʿ 5$,- $%&'"6ʿ 8#,ʿ 21'+) '.ʿ 1"'?ʿ $'(ʿ 3&+&,"#'6ʿ $'(ʿ 8#,ʿ ")&ʿ @&""&,ʿ 5$?%&'"ʿ #8ʿ ")&ʿ ,%?ʿ $%ʿ ")&ʿ T1$,"&,+6ʿ "#ʿ 2,#!&&(ʿ "#ʿ ",?ʿ $'?ʿ $,'&ʿ #,ʿ $,'&+ʿ @&-#*ʿ ")&ʿ $':ʿ #8ʿ $ʿ #%Nʿ % ++ #'&(ʿ 88 !&,ʿ 8#,ʿ $'?ʿ 88&'!&ʿ !#%% "ʿ &(ʿ @?ʿ $'?ʿ #8ʿ ")&%ʿ *) -&ʿ +&,4 '.ʿ 'ʿ !#'>1'!"#'ʿ *")ʿ +ʿ $>&+"?;+ʿ $'(ʿ #,!&+6ʿ $'(ʿ "#ʿ +&'"&'!&ʿ $'?ʿ +1!)ʿ $,'&ʿ "#ʿ $'?ʿ %2, +#'%&'"6ʿ +#-"$,?ʿ #,ʿ #")&,* +&6ʿ $'(ʿ *")ʿ #,ʿ *")#1"ʿ @$,(ʿ $@#1,6ʿ 'ʿ $'?ʿ 21@- !ʿ 5, +#'ʿ #,ʿ #")&,ʿ 5-$!&ʿ *) !)ʿ +1!)ʿ #1,"ʿ %$?ʿ $22#'"6ʿ #,ʿ "#ʿ #,2#,$-ʿ 51' +)%&'"ʿ '#"ʿ &9"&'('.ʿ "#ʿ 8&ʿ #,ʿ %@6ʿ 8#,ʿ %%#,$- "?6ʿ +@&)$4 #1,6ʿ #,ʿ &.-&!"ʿ #8ʿ 31"?ʿ>ʿ $'(ʿ +1!)ʿ #1,"ʿ %$?6ʿ 'ʿ $(("#'ʿ "#ʿ &")&,ʿ #8ʿ ")&ʿ +$(ʿ 51' +)%&'"+6ʿ +&'"&'!&ʿ $ʿ $, '&ʿ "#ʿ #,8&"1,&ʿ #8ʿ $--ʿ (4$'"$.&ʿ $+ʿ "#ʿ $(("#'ʿ $-ʿ 5$?6ʿ $'(ʿ "#ʿ 5&'+#'ʿ #'ʿ 3 +!)$,.&6ʿ 8#,ʿ (+.,$!&81-ʿ #'(1!"ʿ 'ʿ * -81--?ʿ %$% '.ʿ #,ʿ '>1,ʿ '.ʿ) %+&-86ʿ #,ʿ $'?ʿ #")&,ʿ $, '&ʿ $"ʿ ")&ʿ '+"$'!&ʿ #8ʿ +1!)ʿ $, '&6ʿ *")ʿ '"&'"ʿ "#ʿ ,&'(&,ʿ) %+&-8ʿ #,ʿ +1!)ʿ #")&,ʿ $, '&ʿ 1'8 "ʿ 8#,ʿ ")&ʿ &,4 !&6ʿ #,ʿ "$%2&,ʿ '.ʿ *")ʿ)+ʿ ?&+ʿ 'ʿ %$- '.&,ʿ '.6ʿ 8&ʿ '.ʿ '.ʿ 3 +&$+&6ʿ $@+&'"ʿ '.ʿ) %+&-8ʿ 8,#%ʿ #+2 "$-ʿ *) -&ʿ 1'(&,ʿ &(!$-ʿ $,&6ʿ #,ʿ #")&,ʿ $'(ʿ -$*81-ʿ 1-&+ʿ #8ʿ $'?ʿ #+2 "$-6ʿ ")&ʿ ;&@?ʿ * -81--?ʿ 2,#(1! '.ʿ #,ʿ $.,$4$"'.ʿ '.ʿ 3 +&$+&ʿ #,ʿ '8,% "?6ʿ #,ʿ * -81--?ʿ (&-$? '.ʿ)+ʿ 1,&ʿ 21,-#' '.ʿ #,ʿ +&-- '.ʿ H#4&,"%&'"ʿ "#,&+ʿ '+"&$- '.ʿ '.ʿ $'?ʿ #'&?ʿ #,ʿ H##(+ʿ ")&ʿ 5,#2&,"?ʿ #8ʿ $ʿ #%,$((6ʿ #8ʿ $ʿ -"$,?ʿ 88 !&,6ʿ #,ʿ #8ʿ $'?ʿ - "$,?ʿ #,ʿ 3 4 + #'+ʿ #,ʿ &. %&'"$-ʿ &++#8ʿ '2,#(1! '.6ʿ 8$+&ʿ #,ʿ 8,$1(1-&'"ʿ !!#1'"+ʿ #,ʿ &"1,'+ʿ é ʿ '&%@&LL- '.ʿ #,ʿ 8,$1(1-&'"-?ʿ % +$22-? '.ʿ 51@- !ʿ #'&?ʿ '",1+"&(ʿ "#ʿ) %é #,ʿ 8#,ʿ $'?ʿ #")&,ʿ (+.,$!&81-ʿ #'(1!"6ʿ @& '.ʿ #8ʿ $ʿ !,1&-6ʿ '(&!&'"6ʿ 1''$"1,$-ʿ 8&-#'ʿ #1+6ʿ #,ʿ 8,$1(1-&'"ʿ $"1,&ʿ$ʿ $'(ʿ +1!)ʿ 88&'(&,ʿ %$?ʿ @&ʿ 81,")&,ʿ 21"ʿ 1'(&,6ʿ "#22$.&+6ʿ '#"ʿ &9#&&(ʿ #7 *#

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'(@& " &'$!"&( )$" " +)$-- @& -$*81- 8#, $'? 88 !&, *D3H" O D23 !#%%$'('. $'? (+" '!" 3&"$!)%&'" #, 5#,"#' #8 + $>&+"?;+ (I/3E #?$- $, '& #,!&+ *) !) %$? $" $'? %& @& +&,4 '. #1" #8 + $>&+"?;+ 3#% '#'+6 12#' #%2-$ '" %$(& "#) % #8$'? 88&'!& !#%% ""&($.$ '+" ")& 5,#2&,"? #, 5&,+#' #8$'? ')$@ "$'" #8 #, &+ (&'" '$'? +1!) #1'", &+ @? $'? 5&,+#' 1'(&, ")& %%&($"& #%%$'(#8$'? +1!) 88 !&,6 "# +1%%#' $'(!$1+& "# @& $++&%@-&($ #1,"B%$," $-6 *) !) +)$-- !#'+ +" #8 '#" -&++ ")$'),&& 88 !&,+6 8#, ")& ,$'? +1!) 5&,+#'6 '#"* ")+"$'('. +1!) 88 !&, +)$-- '#")$4& ,&!& 4&($'? E$,,$'" &%2#*&, '.) % "# $++&'@-& #1,"+B %$," $- $'(&4&,? 1!) #1,"B%$," $- +)$--)$4& ")& +$%& 5#*&,+ '&.$,('. "# +1%%#' '. $'(&9$% ' '. E "'&++&+6 , $- #8 $'(&"'&'!& 12#' 88&'(&,+6 $+ $,& . $'"&(@? ")& H&'&,$-B #1,"+B%$," $- 5,#4 (&(")$" # &'"&'!& #8 $'? +1!) #1,"B %$," $- +)$-- @& &9&!1"&(1'" - ")& H&'&,$- !#%%$'('. '") && ")& ,,$? #8 *) !) ")& 3 4+#'6 , .$(&6 3&"$!)%&'"6 #, 5$,"? #8 *) !) ")& +$%& %$? @& +)$--)$4& $22,#4&($'(&# 88 ,%&(")&+$%!f

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")&' +$%&6' $! !#,(' .' "#' ")&' & ' .")' ")&,&#8' 2,#4 (&(' ")$" +1!)' 3&N
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*) !)')&' %$?')$4&' & ' - +"&(6' #,' 8')&' +)$--' @&' ", &(' *) -&' $!"1$--?
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$,&' >1+"-?' &'" "-&(' "#' $' #*$,(' 8#,' +1!)' 22,&)&'+ #'6' ")&' +$ ('
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+ +"&'!&' #8' $'?' +1!)' 3&+&,"&,6' $'(' +"#22&(' #1"' #8' ")&' +$%&] ;5,#N
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&'- +"&(6' $'(' "#' @&' $' $, '&6' $'(' +)$--' @&' - $@-&' "#' +&,4&' '' ")&' +$ ('
#,!&+6' *)&")&,' @&' +)$--')$4&' @&&'' &4&,' $!"1$--?' &'- +"&(' $+' $' $, '&'
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$+' $' $, '&6')&' +)$--6' * ") ''5#1,' 3$?+' @1" '#" +##'&,'")$'' *&'"?B'
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8' +1!)' &!,1 " +)$--' (&!-$,&') +')$4 '.' 4#-1'"$, -?' &'- +"&(6' ")&'
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R <ʿ '(ʿ @&ʿ "ʿ &'$!"&(ʿ)$"ʿ $'?ʿ &!,1 "ʿ $22&$, '.ʿ $+ʿ $8#,&N +$ (ʿ @&8#,&ʿ +1!@ʿ R1+" !&ʿ +)$--ʿ @&ʿ $"ʿ - @&,"?ʿ "#ʿ (&!-$,&ʿ) +ʿ 3 ++&'"ʿ "#ʿ +1!)ʿ '- +" '.6ʿ $'(ʿ 12#'ʿ +1!)ʿ 3&!-$,$" #'6ʿ $'(ʿ ,&"1,' '.ʿ ")&ʿ '- +" '.ʿ #'&?6ʿ $'(ʿ $-7ʿ 2$? '.ʿ ")&ʿ 1%ʿ #8ʿ *&'"?ʿ) -- '.+ʿ 8#,ʿ ")&ʿ)$,.&+ʿ &92&'(&(ʿ 12#'ʿ) %6ʿ "#.&")&,ʿ * ")ʿ ")&ʿ 81--ʿ %#1'"ʿ #8ʿ 1@+ +"&'!&ʿ $'(ʿ &&,ʿ #'&?ʿ *) !)ʿ +)$--ʿ)$4&ʿ @&&'ʿ 2$ (ʿ "#ʿ +1!)ʿ &!,1 "ʿ +1@+&C1&'"ʿ "#ʿ) +ʿ '- +"%&'"6ʿ +)$--ʿ @&ʿ 8#,") * ")ʿ (+!)$,.&(ʿ 'ʿ ")&ʿ 5,&+&'!&ʿ #8ʿ $1!)ʿ R1+" !&ʿ @1"ʿ 8ʿ +1!)ʿ 5&,+#'ʿ +)$--ʿ ,&81+&ʿ #,ʿ '&.-&!"6ʿ * ") 'ʿ ")&ʿ 2$!&ʿ #8ʿ *&'"?B8#1,ʿ #1,+ʿ $8"&,ʿ +#ʿ (&!-$, '.ʿ) +ʿ 3 ++&'"6ʿ "#ʿ ,&"1,'ʿ +1!)ʿ #'&?ʿ $+ʿ $8#,&+$ (6ʿ)&ʿ +)$--ʿ @&ʿ (&&%&(ʿ $'(ʿ "$:&'ʿ "#ʿ @&ʿ &'- +"&(ʿ $+ʿ 8ʿ)&ʿ)$"-ʿ .4&'ʿ) +ʿ ++&'"ʿ ")&,&"#ʿ @&8#,&ʿ ")&ʿ +$ (ʿ R1+" !&ʿ $'(ʿ "ʿ +)$--ʿ $-+#ʿ @&ʿ -$*81-ʿ 8#,ʿ $'?ʿ R1+" !&ʿ "#ʿ (+!)$,.&ʿ $'?ʿ 5&,+#'ʿ *)#ʿ +)$--ʿ)$4&ʿ)$+" -?ʿ &'- +"&(6ʿ $'(ʿ *)#ʿ +)$--ʿ $22-?ʿ "#ʿ) %ʿ "#ʿ (&!-$,&ʿ) +B 3 ++&'"ʿ * ") 'ʿ +1!)ʿ #1,ʿ 3$?+ʿ $+ʿ $8#,&N +$ (6ʿ 12#'ʿ 2$?%&'"ʿ #8"")&ʿ Y1%ʿ #8ʿ #'&?ʿ ,&C1 ,&(ʿ "#ʿ @&ʿ 2$ (ʿ @?ʿ $'?ʿ &!,1 "ʿ (&!-$, '.ʿ @ +ʿ 3 ++&'"ʿ 1'(&,ʿ ") +ʿ !"6ʿ '#"* ")+"$'('.ʿ '#ʿ 5&,+#'ʿ @&-#'.'.ʿ "#ʿ ")&ʿ &!,1 " '.ʿ 5$,"?ʿ +)$--ʿ @&ʿ * ")ʿ ")&ʿ &!,1 "6ʿ 2,#4 (&(ʿ "ʿ +)$--ʿ $22&$,ʿ "#ʿ +1!)ʿ R1+" !&6ʿ 12#'ʿ 5,##8ʿ "#ʿ) +ʿ $" +8$!" #'6ʿ ")$"ʿ ")&ʿ &!,1 " '.ʿ 5$,"?ʿ)$+ʿ -&8"ʿ ")&ʿ 5-$!&ʿ *)&,&ʿ +1!)ʿ &!,1 "ʿ *$+ʿ &'- +"&(6ʿ #,ʿ ")$"ʿ ")&ʿ &!,1 "ʿ !#1-(ʿ '#"ʿ 2,#!1,&ʿ $'?ʿ 5&,+#'ʿ @&-#'. '.ʿ "#ʿ +1!)ʿ 5$,"?ʿ "#ʿ .#ʿ E ")ʿ) %ʿ @&8#,&ʿ ")&ʿ R1+" !&ʿ ʿ $'(ʿ ")&ʿ 1%ʿ 2$ (ʿ @?ʿ +1!)ʿ &!,1 "ʿ V8#'ʿ) +ʿ 3 +!)$,.&ʿ +)$--ʿ @&ʿ :&2"ʿ @?ʿ ")&ʿ R1+" !&6ʿ $'(ʿ 2$ (ʿ "#ʿ $'?ʿ 5&,+#'ʿ @&-#'.'.ʿ "#ʿ ")&ʿ &!,1 " '.ʿ 5$,"?ʿ &'" "-&(ʿ ")&,&"#ʿ $'(ʿ (&%$'('.ʿ ")&ʿ +$%&] 5,#4 (&(ʿ $-*$?+6ʿ ")$"ʿ '#ʿ &!,1 "ʿ *)#ʿ)$+ʿ $!"1$--?ʿ ")#1.)ʿ &,,#'&#1+-?ʿ @&&'ʿ (+!)$,.&(ʿ @?ʿ ")&ʿ R1+" !&ʿ @&8#,&ʿ ")&ʿ 92 ,$" #'ʿ #8ʿ *&'"?B8#1,ʿ #1,+ʿ $8"&,ʿ ")&ʿ %&ʿ #8ʿ) +ʿ '- +"%&'"ʿ +)$--ʿ @&ʿ - $@-&ʿ #'ʿ ")$"ʿ !!#1'"ʿ "#ʿ @&ʿ 2,#!&&(&(ʿ $.$ '+"ʿ $+ʿ)$4 '.ʿ (&+&,"&(ʿ 8,#%ʿ +ʿ $>&+"47+ʿ &,4 !&ʿ $'(ʿ ")&ʿ R1+" !&ʿ *)#ʿ +)$--ʿ (+!)$,.&&ʿ $'?ʿ &!,1 "ʿ +)$--ʿ '&4&,?ʿ $ &ʿ . 4&ʿ "#ʿ) %ʿ $ &," 8 !$"&6ʿ 1'(&,ʿ @ +ʿ $'(6ʿ +2&! 8?ʿ '.ʿ ")&ʿ $1+&ʿ ")&,&#8

22,&'" !&+ʿ &'- +" '.ʿ "#ʿ)&ʿ - $@-&ʿ "#ʿ +&,4&ʿ $8"&,ʿ ")&ʿ 92 ,$N "#'ʿ #8ʿ ")&,ʿ 22,&'" !&N +) 26ʿ

<ʿ '(ʿ @&ʿ "ʿ &'$!"&(6ʿ)$"ʿ $,"?ʿ 5&,+#'ʿ (1-?ʿ @#1'(ʿ $+ʿ $'ʿ 22,&'" !&6ʿ *)#ʿ +)$--ʿ &'- +"ʿ '"#ʿ +ʿ $>&+"?;+ʿ #?$-ʿ $, '&ʿ #,!&+6ʿ $'(ʿ +)$--ʿ +"$"&ʿ "#ʿ ")&ʿ $. +",$"&ʿ)&8#"&ʿ *)#%ʿ)&ʿ +)$--ʿ @&ʿ $""&+"&(ʿ ")$"ʿ)&ʿ +ʿ '#"ʿ $'ʿ 22,&'" !&6ʿ +)$--ʿ @&ʿ (&&%&(ʿ .V -"?ʿ #8ʿ #@"$' '.ʿ #'&?ʿ @?ʿ 8$-+&ʿ 5,&"&'!&+6ʿ $'(ʿ +)$--6ʿ $8"&,ʿ ")&ʿ 92 ,$" #'ʿ #8ʿ +ʿ 22,&'" !&+) 26ʿ *)&")&,ʿ @&ʿ +)$--ʿ)$4&ʿ @&&'ʿ +#ʿ !#'4 !"&(ʿ $'(ʿ 21B' +- &(6ʿ #,ʿ '#"6ʿ @&ʿ - $@-&6ʿ "#ʿ +&,4&ʿ $+ʿ $ʿ $, ?&ʿ $'(ʿ 8ʿ #'ʿ ")&ʿ 92 N ,$" #'ʿ #8ʿ) +ʿ 22,&'" !&+) 2ʿ)&ʿ +)$--ʿ '#"ʿ (&- 4&,ʿ) %+&-8ʿ 12ʿ "#ʿ +#%&ʿ 88 !&,ʿ $1")#, L&(ʿ "#ʿ ,&!& 4&ʿ &!,1 "+6ʿ %$?ʿ @&ʿ "$:&'ʿ $+ʿ $ʿ 3&+&,"&,ʿ 8,#%ʿ +ʿ $>&+"?;+ʿ #?$-ʿ $, '&ʿ #,!&+

51' +)%&'"ʿ #8ʿ 22,&'N " !&+ʿ &'- +"N '.

<ʿ '(ʿ @&ʿ "ʿ &'$!"&(6ʿ)$"ʿ '#ʿ 22,&'" !&ʿ !-$%&(ʿ @?ʿ + $+"&,ʿ +)$--ʿ @&ʿ "$:&'ʿ 8,#%ʿ $'?ʿ 3 4 +#'6ʿ 3&"$!)%&'"6ʿ &!,1 " '.ʿ 5$,"?6ʿ #,ʿ)2ʿ #8ʿ +ʿ $>&+"?6ʿ &9!&2"ʿ 1'(&,ʿ $ʿ E$ $'ʿ #8ʿ $ʿ R1+" !&ʿ ,&+ ('.ʿ '&$,ʿ $'(ʿ *")ʿ ʿ *)#+&ʿ R1, +(!" #'ʿ +1!)ʿ 22,&'" !&ʿ +)$--ʿ ")&'ʿ)$22&'ʿ "#ʿ @&6ʿ @&8#,&ʿ *)#%ʿ)&ʿ +)$--ʿ @&ʿ !$,,&(ʿ $'(ʿ +1!)ʿ R1+" !&ʿ +)$--ʿ 'C1 ,&ʿ '"#ʿ ")&ʿ $""&,ʿ 12#'ʿ $")ʿ X*) !)ʿ $")ʿ)&ʿ +ʿ)&,&@?ʿ &%2#*&,&(ʿ "#ʿ $(% '+"&,[6ʿ $'(ʿ ,&C1 ,&ʿ ")&ʿ 5,#(1!" #'ʿ $'(ʿ 5,##8ʿ #8ʿ ")&ʿ '(&'"1,&6ʿ $'(ʿ ")$"ʿ #"!&ʿ #8ʿ ")&ʿ +$ (ʿ E$,,$'"ʿ)$+ʿ @&&'ʿ .4&'ʿ "#ʿ $'(ʿ $ʿ #2?ʿ -&8"ʿ * ")ʿ ")&ʿ 88 !&,ʿ 1'(&,ʿ *)#+&ʿ #%%$'(ʿ ")&ʿ 22,&'" !&ʿ +)$--ʿ ")&'ʿ @&6ʿ $'(ʿ ")$"6ʿ +1!)ʿ 5&,+#'ʿ +#ʿ &'- +"&(ʿ (&!-$,&(ʿ ")$"ʿ)&ʿ *$+ʿ '#"ʿ 22,&'" !&ʿ >ʿ $'(ʿ +1!)ʿ R1+" !&6ʿ 8ʿ ,&C1 ,&(ʿ @?ʿ +1!)ʿ 88 !&,6ʿ +)$--ʿ !#%% "

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)& %$? ") ': 2,#2&, "# . 4& 4 (&'!& $.$ '+" ")& 88&'(&,6 *)#
+)$-- @& ", &($" ")& '&9" #, '&9" +1!!&&('. H&'&,$- #, T1$,"&,
&++ #'+ #8 ")& #1'"?6 3 4 + #'6 #, 5-$!&6 1'-&++ ")& #1," +)$-- #'
$1+& 21" #88, ")& , $- $'(")& 5,#(1!" #' #8 ")& '(&'"1,&6
* ") ")& &," 8 !$"& #8")& R1+" !&+ ")$" ")& +$%& *$+ 2,#4&(6 +)$-- @&
+188 ! &'" 4 (&'!& #8 ")& +$ ('(&'"1,& $'(&4&,? +1!) 88&'(&,
%$? @& ", &(@? ")& R1(.& ,('$,? ' ")& #1'"? #,
"&*$,",?6 ' +1!) $'(")& - :& $''&, $+ $'? 5&,+#' %$? @& ", &(
' 88_,$'? 88&'!& '#" '8&,, '. $ $2 "$- 51' +)%&'" $'(
$'? R1+" !& '#" ,&C1 ,&($+ $8#,&+$ ("# !#%% " +1!) 22,&'" !&
%$? (&- 4&,) % "# @ + $+"&,] 5,#4 (&($-*$?+6 ")$" &4&,? 2N
2,&'" !& *)# +)$-- &'- +" '"# ")& 5#?$- $, '&+ (1, '. ")& 5&, #(
#8) + 22,&'" !&+) 2 +)$-- @& (&&%&(.1 -"? #8 $ +(&%&$'#,6 $'(
V2#' #'4 !" #' @& - $@-& "# ")& +$%& 51' +)%&'" $+ 88&'(&,+ !#'N
4 !"&(#8 #@"$ ' '. #'&? 1'(&, 8$-+& 5,&"&'!&+ $,& - $@-& "# $'(
&4&,? +1!) 22,&7&& +)$--6 $8"&, ")& 92 ,$" #' #8) + 22,&'" !&N
+) 26 *)&")&,)& +)$--)$4& @&&' 2,#+&!1"&(#, '#"6 @& - $@-& "#
+&,4& ' + $>&+"?;+ #?$- $, '& #,!&+ $'(8 #' ")& 92 ,$N
" #' #8 @ + 22,&'" !&+) 2)& +)$-- '#" (&- 4&,) %+&-8 12 "# +#%&
88 !&, $1")#, L&("# ,&!& 4& &!,1 "+6)& %$? @& $22,&)&'(&($+ $
3&+&,"&, 8,#% + $>&+"?;+ $, '& #,!&+

< '(@& "&'$!"&(6)$" 8 $'? &!,1 " +)$-- ,&!& 4& 8-88'!&+ !#'B
")& '- +" '. #'&? 8,#% $'? 5&,+#' &%2-#?&(' ")& &!,1 " '. '&!"&(* ")
&,4 !& X: '#* '. " "# @& +1!)[6 $'(+)$-- $@+!#'(#, ,&81+& "# .# K
@&8#,& +1!) R1+" !&6 #, +)$-- ")&,&$8"&, $@+&'") %+&-8 8,#% ")&
&!,1 " '. 5$,"? #, 5&,+#' * ") *)#%)& &'- +"&(6 $'(+)$-- '#"
4#-1'"$, -? ,&"1,' "# .# @&8#,& +#%& R1+" !& * ") ' +1!) 5&, #(#8
#1, 3$?+ $+ $8#,&+$ (6 +1!) &!,1 " +)$-- @& (&&%&("# @& &'- +"&(
$'($ 5, 4$"& ' + $>&+"?;+ #?$- $, '& #,!&+6 $+ 81--? "# $--
'"&'"+ $'(51,2#+&+ $+ 8)&)$(@&&' (1-? $""&+"&(6 $'(%$? @&
$22,&)&'(&($'(21' +)&($+ $ 3&+&,"&,6 #, 8#, @& '. $@+&'" * ")#1"
&$4&6 1'(&, $'? ," !-&+ #8 E$, %$(& 8#, ")& 51' +)%&'" #8
1" '? $'(3&+&," #' $'(+1!) &!,1 " +)$-- '#" @& (+!)$,.&(@?
$'? R1+" !& #8 ")& 5&$!& $8"&, ")& 92 ,$" #' #8 +1!) #1, 3$?+ $+
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")$" ")& ",1& $%& $'(&+ (&'!& #8 ")& &!,1 " E$+ (+!-#+&($'(
:'#* ' "# ")& &!,1 " '. 5$,"?6 $'(")$" '# #" !& *$+ . 4&' "# ")&
&!,1 "6 #, -&8" $" @ + 1+1$- 5-$!& #8 @#(&6 #8) +)$4 '. +# &'- +"&(
2,#4 (&(")$" '&4&"? $+& *)&,& '$'? &!,1 " +)$--)$4& ,&!& 4&(
'- +" '. #'&?6 $'(+)$--)$4& $@+!#'(&(8,#% ")& 5$,"?6 +# ")$" "
+)$-- '#" @& 2#++ @-& %%&($"&-? "# $22,&)&'($'(@, '.) % @&8#,&
$ R1+" !&6 ")& 88 !&, #, #'B!#%% ++ #'&(88 !&, !#%%$'('. ")&
5$,"? +)$-- 2,#(1!&6 "# ")& R1+" !& @&8#,& *)#% ")& &!,1 " #1.)"
,&.1-$,-? "#)$4& @&&' @,#1.)" 8#, ""&+"$" #'6 $ &," 8 !$"& #8 ")&
$%& $'(5-$!& #8 &+ (&'!& #8 +1!) &!,1 " $'(")& R1+" !& "#
*)#% +1!) &," 8 !$"& +)$--6 $8"&, +$" +8? '.) %+&-8
")$" ")& &!,1 " *)#)$($@+!#'(&(!$''#" @& 8#1'($'($22,&N
)&'(&(6 ",$'+% " $ 312- !$"& ")&,&#8 "# ")& &!,&"$,? #8 ")& (% N
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$22,&)&'(&(ʿ $'(ʿ ,&2#,"&(ʿ $+ʿ $ʿ 3&+&,"&,6ʿ ")&ʿ $!"ʿ #8ʿ) +ʿ)$4 '.6ʿ
,&!& 4&(ʿ '-+" '.ʿ #'&?6ʿ $'(ʿ)$4 '.ʿ $@+!#'(&(ʿ $8"&,ʿ)$4 '.ʿ @&&$ʿ
&'-+"&(6ʿ %$?ʿ @&ʿ $+!&,"$ '&(ʿ @&8#,&ʿ)&ʿ @&ʿ 8 '$--?ʿ $(>1(.&(ʿ "#ʿ @&ʿ $ʿ
3&+&,"&,ʿ $'(ʿ $8"?ʿ &!,1 Rʿ *)#ʿ +)$--ʿ &'-+"ʿ '"#ʿ +ʿ $>&+"?;+ʿ #?$-ʿ
$, '&ʿ #,!&+6ʿ $'(ʿ *)#ʿ +)$--ʿ @&ʿ (+!#4&,&(ʿ "#ʿ @&ʿ '!2@-&ʿ #8ʿ $!" 4&ʿ
&,4 !&ʿ @?ʿ ,&$+#'ʿ #8ʿ $'?ʿ '8 ,% "?ʿ !#'!&$-&(ʿ #,ʿ '#"ʿ (&!-$,&(ʿ @?ʿ +1!)ʿ
&!,1 "ʿ @&8#,&ʿ ")&ʿ R1+" !&ʿ $"ʿ ")&ʿ %&ʿ #8ʿ) +ʿ ""&+"$" #'6ʿ $'(ʿ %&'*ʿ
"#'&(ʿ ")&,& '6ʿ %$?ʿ @&ʿ ",$'+8&,,&(ʿ '"#ʿ $ʿ H$,, +#'ʿ #,ʿ <&"&,$'ʿ #,ʿ
'4$- (ʿ $""$-#'6ʿ $'(ʿ +)$--ʿ @&ʿ &'" "-&(ʿ "#ʿ ,&!& 4&ʿ +1!)ʿ 5,#2#," #'ʿ #,ʿ
&+ (1&ʿ #8ʿ #1'"?ʿ #'-?ʿ $+ʿ ")&ʿ #,(ʿ .)ʿ (% ,$-6ʿ #,ʿ ")&ʿ #%% +N
+#'&,+ʿ 8#,ʿ &9&!1" '.ʿ ")&ʿ 88 !&ʿ #8ʿ #,(ʿ .)ʿ (% ,$-6ʿ %$?ʿ $--#*ʿ 1ʿ
")$"ʿ &)$-86ʿ '+"&$(ʿ #8ʿ ")&ʿ #1'"?ʿ 12#'ʿ *) !)ʿ +1!)ʿ $'ʿ +)$--ʿ)$4&ʿ
@&&'ʿ &'-+"&(6ʿ $'?ʿ !"ʿ #,ʿ $'?ʿ 1-&+ʿ $'(ʿ &.1-$" #'+ʿ "#ʿ ")&ʿ !#'",$,?6ʿ
'#"* ")+"$'(ʿ '.ʿ $'(ʿ "+)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ $'?ʿ *#ʿ R1+" !&+ʿ @&8#,&ʿ
*)#%ʿ $'?ʿ &!,1 "ʿ +)$--ʿ @&ʿ @,#1.)"6ʿ $'(ʿ *)#ʿ +)$--ʿ @&ʿ 2,#4&(6ʿ 12#'ʿ
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!&$-&(ʿ $'?ʿ '8 ,% "?ʿ 12#'ʿ @&ʿ '.ʿ $""&+"&(6ʿ #,ʿ (&+.'&(-?ʿ %$(&ʿ $'?ʿ
8$-+&ʿ &2,&+&'"$" #'6ʿ "#ʿ $(>1(.&ʿ +1!)ʿ 5&,+#'ʿ "#ʿ @&ʿ $ʿ #.1&ʿ $'(ʿ
<$.$@#'(6ʿ $'(ʿ "#ʿ +&'"&'!&ʿ)%ʿ "#ʿ +1!)ʿ 51' +)%&'"ʿ $+ʿ @?ʿ $'?ʿ
$*ʿ '#*ʿ 'ʿ 8#,!&ʿ %$?ʿ @&ʿ '8-!"&(ʿ #'ʿ #.1&+ʿ $'(ʿ <$.$@#'(+ʿ $'(ʿ
<$.,$'"+ʿ $'(ʿ '!#,, .@-&ʿ #.1&+ʿ $'(ʿ $'?ʿ &!,1 "ʿ *)#ʿ +)$--ʿ
(&+.'&(-?ʿ %$:&ʿ $'?ʿ 8$-+&ʿ &2,&+&'"$" #'ʿ #8ʿ $"?ʿ 5$," !1-$,ʿ !#'"$ '&(ʿ
'ʿ ")&ʿ $")+ʿ $'(ʿ &,"8 !$"&+ʿ 'ʿ ")&ʿ !)&(1-&ʿ "#ʿ ") +ʿ !"ʿ $''&9&(6
M@&8#,&ʿ ")&ʿ R1+" !&ʿ $"ʿ ")&ʿ %&ʿ #8ʿ) +ʿ ""&+"$" #'6ʿ $'(ʿ +)$--ʿ ")&,&@?ʿ
#@"$ 'ʿ $'?ʿ '-+" '.ʿ #'&?6ʿ #,ʿ $'?ʿ #1'"?ʿ 8#,ʿ &'"&, '.ʿ '"#ʿ +ʿ
$>&+"?;+ʿ &,4 !&6ʿ #,ʿ $'?ʿ #")&,ʿ #'&?6ʿ +)$--ʿ @&ʿ (&&%&(ʿ .1-"?ʿ #8
#@"$ ' '.ʿ #'&?ʿ 1'(&,ʿ 8$-+&ʿ 5,&"&'!&+6ʿ *")'ʿ ")&ʿ ",1&ʿ '"&'"ʿ $'(ʿ
&$' '.6ʿ 8ʿ 'ʿ .ʿ #8ʿ $'ʿ !"6ʿ '""1-&(ʿ
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#1,")6ʿ '""1-&(ʿ * $
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")&ʿ 5,#(1!" #'ʿ #8ʿ +1!)ʿ &," 8 !$"&6ʿ $'(ʿ 5,##8ʿ #8ʿ ")&ʿ $'(*, " '.ʿ #8ʿ
")&ʿ R1+" !&ʿ .4 '.ʿ +1!)ʿ &," 8 !$"&6ʿ +)$--ʿ @&ʿ +188 ! &'"ʿ 4 (&'!&ʿ #8ʿ +1!)ʿ
5$,"?ʿ)$4 '.ʿ ,&2,&+&'"&(ʿ ")&ʿ +&4&,$-ʿ 5$," !1-$,+ʿ !#'"$ '&(ʿ 'ʿ ")&ʿ $")ʿ
+*#,'ʿ @?ʿ) %6ʿ $'(ʿ +2&! 8 &(ʿ 'ʿ ")&ʿ &," 8 !$"&ʿ #8ʿ ")&ʿ R1+" !&ʿ $"ʿ ")&ʿ
%&ʿ #8ʿ) +ʿ)$4 '.ʿ @&&'ʿ $""&+"&(ʿ $'(ʿ ")$"ʿ 5,##8ʿ @?ʿ ")&ʿ $")ʿ #8ʿ
'&ʿ #,ʿ %#,&ʿ !,&(@-&ʿ E "'&++&+6ʿ ")$"ʿ ")&ʿ 5&,+#'ʿ +#ʿ 2,#+&!1"&(ʿ)$")ʿ
4#-1'"$,-?ʿ $!:'#*-&(.&(ʿ ")$"ʿ $"ʿ ")&ʿ %&ʿ #8ʿ) +ʿ '-+"%&'"ʿ)&ʿ
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$'?ʿ #--ʿ #,ʿ #")&,ʿ 3#!1%&'"ʿ "#ʿ 2,#4&ʿ ")&ʿ +$%&>ʿ $'(ʿ $'?ʿ $'ʿ E)#6ʿ
)$4 '.ʿ @&&'ʿ &',#--&(ʿ "#ʿ +&,4&ʿ 'ʿ ")&ʿ -"$6ʿ $'(ʿ *)$"ʿ $"ʿ ")&ʿ %&ʿ #8ʿ
#88&, '.ʿ "#ʿ &'-+"ʿ '"#ʿ ")&ʿ $, '&+ʿ +)$--ʿ (&'?ʿ ")$"ʿ)&ʿ +ʿ $ʿ -"$ʿ $'6ʿ
#,ʿ +)$--ʿ (&'?ʿ "#ʿ ")&ʿ R1+" !&ʿ @&8#,&ʿ *)#%ʿ)&ʿ +)$--ʿ @&ʿ $""&+"&(ʿ ")$"ʿ
@&ʿ @&-#'.+ʿ "#ʿ ")&ʿ -"$6ʿ +)$--6ʿ #'ʿ #'4 !" #'ʿ ")&,&#8ʿ @&8#,&ʿ $'?ʿ
'&ʿ R1+" !&ʿ 'ʿ ")&ʿ V'"&(ʿ D '.(#%6ʿ &")&,ʿ 12#'ʿ ")&ʿ $")ʿ #8ʿ '&ʿ
E "'&++ʿ #,ʿ V2#'ʿ) +ʿ #*'ʿ #'8&++ #'6ʿ #,ʿ 12#'ʿ ")&ʿ 5,#(1!" #'ʿ #8ʿ ")&ʿ
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#,' $ '2, L&' 8#,' $'(' (1, '.' $'?' %&' '#" &9!&&('.' 9' $-&'($,'
#'")+6' #4&,' $'(' $@#4&' $'?' 5&'$-"?' #,' 57>1' +)%7'8' "#' *) !)' +1!)'
5&,+#'' +#' #8-8&'('.' %$?' @&' #")&,* +&' - $@-&' ' $'(' +)$--6' 8,#%' ")&' 3$?'
#'' *) !)') +' '.$.&%&'' "#' +&,4&' '' ")&' -"$' +)$--' &'(6' $'(' '#"
+##'&,6' @&-#'.' $+' $' #-(&,' "#' ")&' 3 4 + #'' #8' +' $>&+"?;+' #?$-'
$, '&' #,!&+' '"#' *) !)')&')$+' +#' &'- +"&(' 2,#4 (&(' $-+#6' ")$"
&4&,?' +1!)' 5&,+#'' +)$--' @&' - $@-&' "#' +&,4&' '' +' $>&+"?7+' #?$-'
$, '&' #,!&+6' '' *) !)')&')$+' +#' &'- +"&(6' (1, '.' $--' ")&' %&' ")&'
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$22,&)&'(&(' $'(' (&$-" * ")' $'(' 21' +)&(' $+' $' 3&+&,"&,' 8,#%' ")&'
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< ' '(' @&' '' &'$!"&(6')$" '' +)$--' @&' -$*81-' 8#,' ")&' -D2/76' D/
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$""&+"&(6' @&8#,&' ")&' 92 ,$" #'' #8' ")&' &,%' #8' &,4 !&' 8#,' *) !)' @&' 7
+)$--')$4&' @&&'') ,&(6' "#' $(>1(.&' "#' +1!)' &!,1 '' $' ,&$+#'$@-&' 5,#B' 5,#2#," #'#8'
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8#,") * ")' 2$ (' @?' ")&' $+"&,6' 12#'' *)#%' ")&' +$ (' R1+" !&' +)$--' %$:&
$'' ,(&,' $!!#,('.-?6' $'(' 8' ")&' +$%&' @&' '#" 2$ (' * ") '' #1,' 3$?+'
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5&'$-" &+' %$?' 1'(&,' ") +' !" @&' ,&!#4&,&(' @&8#,&' $' R1+" !&

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$' H&'&,$-' #1,"B%$," $-6' @&' !$+) &,&(6' $'(' (+$@-&(' "#')#-(' $'?' 4 -
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8 !$"&' #8' +1!)' R1+" !&' #8') +')$4 '.' "$:&' +1!)' $")6' *) !)' &," 8 !$"&'
+1!)' R1+" !&' +' ,&C1 ,&(' "#' . 4&' '' ")&' #,%' '' ")&' !)&(1-&' "#' ") +'
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5&, #(' #8' '- +"%&''6' $'(' 1'-&++' +1!)' #'",$!" #,' '(&''1,&' +#' (1-?'
&9&!1"&(' +)$--6' * ") ''),&&' #'")+' $8"&,' ")&' #%%&'!&%&'' #8'
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2,#(1!&(' "#$'R1+" !&' #8")&' 5&$!&' #8")&' #1'"?A' *)&,& '")&' 5$," &+' ,&+ (&6'$'(' ")&,&' +)$--')$4&' @&&'' '(#,+&(' ")&,&#'' @?' +1!)' R1+" !&' $' &," 8 !$"&' #,' 3&!-$,$" #'' + . '&(' @?') %6' +2&! 8? ' .' ")&' 3$"&' *)&'' $'(' ")&' 5&,+#'' @?' *)#%' +1!)' #'",$!" #,' '(&'"1,&' +)$--')$4&' @&&'' +#' 2,#(1!&(6' *) !)' &," 8 !$"&' #,' 3&!-$,$" #'' +1!)' R1+" !&' #8")&' 5&$!&' +')&,&@?' ,&C1 ,&(' "#' '(#,+&' $'(' + . ' ' '#,' 1'-&++'$'?' +1!)' 22,&'" !&' +)$--6' *)&'' !-$ %&(' @?' +1!)' $+"&,6' @&' 1'(&,' *&'"?B' #'&' &$,+' #8' .&' 2,#4 (&(' ")$" $'?' $+"&,' #8' $'' 22,&'" !&' '(&'"1,&('8#,'")&' &$' &,4 !&' +)$--' @&' &'" "-&(' "#' !-$ %' $'(' ,&!#4&,') %' '")&' #,%' $'(' $''&,' $@#4&' (,&!"&(6' '#"* " @+"$'(' '.' +1!)' 22,&'" !&' %$?')$4&' @&&'' @#V'(' Z,'$'-&++' &,%' ")$'' &4&'6' 4&6' #,' #1,' &$,+' $+' $8#,&+$ (' $'(' $'?' +1!)' $+"&,6' *)#' +)$--' . 4&' 12' ")&' '(&'"1,&+' #8' 22,&'" !&+) 2' * ") '' '&' #'")' $8"&,' ")&' &'-+" ' .' #8' +1!)' 22,&'" !&6' +)$--' @&' &'" "-&(' "#' ,&!& 4&6' "#') +' #*'' V+&6' +#' %1!)' #8")&' #1'"?' 2$?$@-&' "#' +1!)' &!,1 "6' $8"&,' (&(1!" '.' ")&,&8,#%' *#' H1 '&$+' "#' 2,#4 (&') %' * ")' &!&++$, &+6' $+' +)$--' '#")$4&' @&&'' 2$ (' "#' +1!)' &!,1 '' @&8#,&' #" !&' . 4&'' #8') +' @&' '.' $'' 22,&'" !&6' K

1+"&,+6'$'(' 5&'$-"?'#'' 8$-+&' 1+"&,+ ' '(' @&' "&'$!"&(')$"' 1+"&,+6' $+')$4&' @&&'' !1+"#%$,?6' +)$--' @&' "$:&'' #8' &4&,?' 3 4 + #'' #,' #%2$'?' #8' #?$-' $, '&+' #'!&' '' &4&,?' $-&'($,' #'")6' $+' +)$--' @&' $22#' '"&(' $'(' '#' 88 !&,'#,' $, '&' +)$--' @&' $@+&'" 8 ,#%' $'?' +1!)' 1+"&,' 1'-&++' (1-?' !&," 8 &(' "#' @&' &%2-#?&(' #'' +#%&' #")&,' 3 1"?' #8' ")&' #,2+6' #,' + ! :6' #,' '' 5, +#'6' #,' #'' 1,-#1.)' ' $'(' &4&,?' 5&,+#'' @&-#'.' '.' "#' +' $>&+"?;+' &,4 !&' *)#' +)$--' . 4&' #,' 2,#!1,&' "#' @&' . 4&'' $'?' %",1&' &," '&$"&7' ")&,&@?' "#' &9!1+&' $'?' 5&,+#'' 8,#%' $'?' 1+"&,' #,' #")&,' &,4 !&' *) !)')&' #1.)' "#' $"&' ('#,' 2&,8#,%6' #,' +)$--' %$:&' $'?' 8$-+&' #,' ' '",1&' 1+"&,' #8' $'' #,' #,+&6' #,' +)$--' * -- '.-?' $--#*' #,' + . '' $'?' 8$-+&' 1+"&,' #,' 312- !$"&' ")&,&#86' #,' +)$--' (,&!"-?' #,' '(,&!"-?' "$:&' #,' ,&!& 4&' $'?' #'&?' #,' H,$"1 "?' 8#,' %1+"&, '.' $'?' 5&,+#'6' #,' 8#,' + . ' '.' $'?' 1+"&,' #--' #,' 312- !$"&6' #,' +)$--' :'#* '.-?' %1+"&,' $'?' 5&,+#'' @?' $' *,#'.' $%&6' +)$--6' 12#'' 5,##8' @?' *#' E "'&++&+' @&8#,&' $' H&'&,$-' #1,"B%$," $-6' 8#,' $'?' +1!)' 88&' !&' @&' 8#,") * ")' !$+) &,&(6' $'(' (+N $@-&(' "#')$4&' #,')#-(' $'?' 4 -' #,B' - "$,?' 88 !&' #,' %2-#?%&'' '' ")&' &,4 !&' #8' +' $>&+"?' ' $'(' $'?' 5&,+#'6' *)#' +)$--' 8,$1(1-&'"-?' #88&,' #,' 2,#!1,&') %+&-8' "#' @&' 8$-+&-?' %1+"&,&(6' #,' -&'(' #,' 81,' +)' $'?' #,+&' "#' @&' 8$-+&-?' %1+"&,&(6' +)$--6' 12#'' 5,##8' ")&,&#8' @?' ")&' $")+' #8' *#' E "'&++&+' @&8#,&' +#%&' R1+" !&' #8' ")&' 5&$!&' ,&+ ('.' "'&$<"#' ")&' 5-$!&' *)&,&' +1!)' 1+"&,' +)$--' @&' %$(&6' 8#,8&' ")&' 1%' #8' *&'"?' 5#1'(+6' $'(' ")&' '8#,%&,6' 8')&' @&-#'.' "#' +' $>&+"?;&' &,4 !&6' +)$--' 8')&' (&%$'(' "6' @&' 8#,") * ")' (+!)$,.&(' $'(' 8' $'?' 5&,+#'' '#"' @&-#'.' '.' "#' +' $>&+"?;+' &,4 !&' +)$--' . 4&' #,' + .' $'?' 1'",1&' &," 8 !$"&' #8' --'&++' #,' #")&,* +&6' '' #,(&,' "#' &9!1+&' $'?' 88 !&,' #,' $, '&' 8,#%6' 22&$,$'!&' $" $'?' 1+"&,6' #,' *)&' ;&@?' +' $>&+"?;+' &,4 !&' %$?' @&' (&8,$1(&(6' &4&,?' 5&,+#'' +#' #88&'(' '.' +)$--' 8#,' &4&,?' +1!)' 88&' !&' 8#,8&' ")&' 1%' #8' *&'"?' 5#1'(+

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3 ' '(' @&' 3' &'$!"&(6')$"' *)&'' ")&,&' +)$--' 7'#"' @&' $'?' &3D#E #' .
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#'' 1,-#1.)' +)$--' @&' (&"$ '&('@?' !:'&++'#,'#")&,' $+1$-"?',&'(&, '.'
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R1+" !&6' *)#'+)$--')&' +$" +8 &('# '+1!)' &!&++ "?6'"#' .,$'''$'' 9"&'+ #''
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#1+&+6' $'(' @&' 81,' +)&(' * ")' 2,#2&' !!#%%#($" #'' '' +1!)'
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$?6' $'(' ",$*' 8#,' +1!)' #,+&+' $+' $8#,&+$ (6' 2$? '.' $'(' $--#* '.'
8#,' ")&' +$%&' ")&' +&4&,$-' $"&+')&,& 'B$8"&,' 2,#4 (&(' $'(' $"' '#'
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6$@#4&' '&' -&' 8,#%' ")&5-$!&' %&''#'&(' ''")&' #1"&' $'(' ''$--
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2-$!&' %&'" #'&(' '' ")&' #1"&6' $-")#1.)' +#%&' #8' +1!)' #1+&+' %$?'
@&' '' ")&' $(>#' '.' #1'"?6' '' - :&' $''&,' '' &4&,?' ,&+2&!"$+' 8' +1!)'
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'' 2,#2&8' V%8#,%6' 3,&++' #,' V', ,&++6' $'(' ")&,' #,+&+6' $'(' $--' $,B' ./ 0' 77E!'
, $.&+' $'(' #,+&+' *)&'' &%2-#?&(' '' !#'4&? '.' 5&,+#'+' #,' $..$.&'
'!' 1'(&,

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1 ' (&, ' ")&' 5,#4 + #' +' #8' ") +' !"6' #, ' ,&"1, ' ' . ' ")&,&8,#%6' +)$--' @&' &9&%2"&(' 8,#%' ")&' 5$?%&' '" #8' $'?' 3 1" &+' $' (' #--+' #' ' &%@$, : ' . ' #, ' (+&%@$, : ' . ' 8,#%' #, ' 12#' ' $'?' 5 &,6' E)$,86' T1$?6' #, ' $' (' . ' 5-$!&6' #, ' 2$++ ' . ' 1, '2 :&' #$(+' #, ' , (.&+6' #")&, * +&' (&%$' ($@-&' @?' 4 ,"1&' #8' $'?' !" $-,&$(?' %$(&' #, ')&,&$8"&, ' "#' @&' ' $(&' 2,#B' MA4 (&(' ")$" '#") ' . ')&,& ' !#' "$ '&(' +)$--' &9&%2"' $'?' #$"+6' $, .&+6' #, ' #")&, ' <&++&-+' &%2-#?&(' ' !#' 4&? ' . ' ")&' +$ (' 5&,+#' +6' #,+&+6' $. . $.&6' #, ' "#,&+' $-#' . ' $'?' $'$-6' 8,#%' 5$?%&' '" #8' #--+6' ' - :&' $' '&, ' $+' #")&, ' #$"+6' $, .&+6' $' (' <&++&-+' $,&' - $@-&' ")&,&"#' > $' (' ")$" *)&' ' $'?' - !&,+' #8' $, '&+' #' ' &,4 !&' +)$--')$4&' ! !$+ #' ' ' ")&' $,!)' "#' 2$++' ,&.1-$, ' &,, &+' ' ' ")&' 88 !&, ' !#%N %$' (' . ' +)$--' @&' $" - @&,"?' "#' 2$++' #4&, ' * ")') +' $, '&+' $+' 5$++&' .&,+6' 2$? ' . ' 8#, ') %+&-8' $' (' &$!)' $, '&' '&' $-8' #' -?' #8' ")&' #,('$,?' $"&' 2$?$@-&' @?' 5$++&' .&,+6' #, ')&' +)$--' @&' $" - @&,"?' "#') ,&' ")&' &,,?' #$" 8#, ') %+&-8' $' (') +' 5$,"?6' (&@$,, ' . ' $--' #")&,+' 8#, ' ")$" %&6' $' (' +)$--' ' ' +1!)' $+&' 2$?' #' -?' $-8' ")&' #,('$,?' $"&' 8#, ' +1!)' #$"

+D#273 DE' IC #' (F7' IO5DH3E' ..D#G #4' 242 #E3' 3"D' 77%ZE' /D723 #4' 3 ' 77D3E' 2#G' (2// 24DE!

' ' (' @&' " &' $!"&(')$" 8' $'?' #' +"$@-&' #, ' #")&, ' 5&,+#' 6' *)#' @?' 4 ,"1&' #8' ") +' !" +)$--' @&' &%2-#?&(' ' ' @ --&"" ' . ' $'?' 88 !&,+' #, ' $, '&+' ' ' $'?' 5$," #8' ")&' V ' "&(' D ' . (#%6' +)$--' 2,&+1%&' "#' @ --&" $'?' +1!)' 88 !&, ' #, ' $, '&' ' ' $'?' #1+&' '#" * ") ' ' " ,&' &$' ' . ' #8' ") +' !"6' * ")#1" ")&' #' +&' '" #8' ")&' * '&, ' #, ' ! !12 &, ' ")&,&#8 ' #, ' +)$--' '&. -&!" #, ' ,&81+&' "#' @ --&" $'?' 88 !&, ' #, ' $, '&' #' 3 1"?6' *)&' ' ")&,&1 '"#' ,&C1 ,&(6' ' +1!)' $' '&, '$+' +' @?' ") +' !" (,&!"&(6' 2,#4 (&(' +188 ! &'" #" !&' @&' . 4&' @&8#,&' ")&' ,, 4$-' #8' +1!)' $, '&+' #, ' +)$--' ,&!& 4&6' (&%$' (6' #, ' $. ,&&' 8#, ' $'?' #' &?' #, ' &*$, (' *)$"+#N &4&,6' ' #, (&, ' "#' &9!1+&' $'?' 5&,+#' ' 8,#%' ,&!& 4 ' . ' $'?' +1!)' 88 !&, ' #, ' $, '&' #, ' +)$--' C1$,"&, ' $'?' #8' ")&' E 4&+6') -(,&'6' &' ' #, ' $' (&,4$' '"+' #8' $'?' 88 !&, ' #, ' $, '&' ' ' $'?' +1!)' #1+&+6' $.$ '+' ")&' #' +&' '" #8' ")&' ! !12 &,+' #, ' +)$--' '&. -&!" #, ' ,&81+&' "#' &9&!1"&' +1!)' E $,,$' '"+' #8' ")&' R1+" !&+' $+' +)$--' @&' (,&!"&(' "#') %' 8#, ' 2,#4 (' . ' $,, $.&+6' #,+&+6' #, ' <&++&-+6' #, ' +)$--' (&%$' (' %#,&' ")$' ' ")&' -&.$-' $"&+' 8#, ' ")&' +$%&' #, ' 8' $'?' 5&,+#' ' $22# '"&(' @?' +1!)' #' +"$@-&' "#' 2,#4 (&' $,, $.&+6' #,+&+6' #, ' <&++&-+' +)$--' (#' $'?' ! #, ') ' . ' @?' *) !)' ")&' 9&!1"#' ' #8' +1!)' E $,,$' '"+' +)$--' @&') '(&,&(' #, ' 8' $'?' 5&,+#' ' - $@-&' @?' ") +' !" "#')$4&' $'?' 88 !&, ' #, ' $, '&' C1$,"&,&(' #"") %' +)$--' ,&81+&' "#' ,&!& 4&' $' (' "#' $88 >,(' 2,#2&, ' ! !#%%#($" #' ' ' / 3 &" ' ' ")&' #1+&' #8' +1!)' 5&,+#' ' ' *) !)')&' +' C1$,"&,&(6' #, ' "#' 81, ' +)' ")&' +&4&,$-') ' . +' (,&!"&(' "#' @&' 81, ' +)&(' "#' 88 !&,+' $' (' $, '&+6' ' / +)$--' '&. -&!" #, ' ,&81+&' "#' 81, ' +)' .##(' $' (' +188 ! &'" "$@-&+6' "#. &")&, ' * ")' .##(' $' (' +188 ! &'" $?' $' (' ",$*' 8#, ' &$!)' #,+&6' $" ")&' ,&$+#' $@-&' $' (' !1+"#%$,?' ,$"&+6' #, ' +)$--' ,&81+&' "#' 8#, ' +)' $'?' $,"!-&+' ' ")$" %&' ,&C1 ,&(' #, ' +)$--' 2$?' $'?' 1%' #8' #' '&?' "#' $'?' $, '&' #' ")&' $,!)' $-' #8' 81, ' +) ' . ' D ' (' ")&' 3 &" $' (' %$--' &&, ' "#' *) !)' +1!)' $, '&' #' ")&' +1!)' #' +"$@-&6' < !"1$--,6' $' (' #")&, ' 5&,+#' ' ,&+2&!" 4&-?' +)$--' 8#,8& " 8#, ' &4&,?' 88&' '!&6' &. -&!"6' #, ' &81+$-' $'?' 1%' '#" &9!&&(' . ' 4&' 5#1' (+' '#, ' -&++' ")$' ' #,"?') -- ' .+ ' ;

+D#2736' IC #' ' (' @&' " &' $!"&(6')$" 8' $)?' 88 !&, ' #8' #?$-' $, '&+' +)$--' "$:&' 12#' ' K) %' "#' C1$,"&, ' &' ' #")&, * +&' ")$' ' +' $ #E&(' @?' ") +' !"6' #, ' +)$--' 1+&' #, ' #88&, ' $'?' &' $!&' #, ' #%21-+ #' ' "#' #, ' 12#' ' $'?' R1+" !&6' #' +"$@-&6' #, ' #")&, ' 4 - 88 !&,6' "&' (' . ' "#' (&"&, ' $' (

'.. HD/%' .' B 2/ #DE' E ' ..D#G #4

(+!#1,$.&' $'?' #8' ")&%' 8,#%' 2&,8#,% ' .' $'?' 5$,'' #8' ")& ,' 3 1"?' 1' (&,'
") +' !"6' #,' "#' (#' $'?' ") ' .' !#'",$,?' ")&,&"#6' +1!)' 88 !&,' +)$--' 8#,'
&4&,?' +1!)' 88&' !&6' @& ' .' ")&,&#8' !#'4 !"&(' @&8#,&' $'?' *#' #,' %#,&'
R1+" !&+' #8' ")&' #1'"?' @?' ")&' $")' #8' *#' !,&(@-&' E "'&++&+6' @&'
(&&%&(' $'(' "$:&'' "#' @&' ' ' !$+) &,&(6' $'(' +)$--' @&' 1""&,-?'
(+$@-&(' "#')#-(' $'?' - "$,?' %2-#?%&'' ' +' $>&+"?;+' &,4 !&'
2,#4 (&(' $' &," 8 !$"&' ")&,&#8' @&' 8#,") * ")' ",$'+% ""&(' @?' ")&' +$ ('
R1+" !&+' "#' ")&' &!,&"$,?' #8' ")&' (% ,$-"?6' $'(' ")$"' ")&' #'4 !" #''
@&' $88 ,%&(' $"' +#%&' T1$,"&,' &++ #'+' #8' ")&' 5&$!&' 8#,' ")&' +$ (' #1'"?'
"#' @&')&-(' '&9'' $8"&,' ")&' 92 ,$" #'' #8'),&&' #'")+' $8"&,' +1!)'
&," 8 !$"&' +)$--')$4&' @&&'' ",$'+% ""&(' $+' $8#,&+$ (' $'(' 8' $'?'
$, '&' 88 !&,'+)$--' "$:&6' #,' :'#* ' .-?' +188&,' "#' @&' "$:&'6' $'?' #'&?'
#,' &*$,(' #8' $'?' 5&,+#'' 8#,' &9!1+ ' .' ")&' C1$,"&, ' .' #8' 88 !&,+' #,'
$, '&+6' #,' +)$--' @ --&'' $'?' #8' ")&' E 4&+6') -(,&'6' &'' #,' $ ('
&,4$'"+' #8' $'?' 88 !&,' #,' $, '&' '' $'?' #1+&6' $.$ '+"' ")&' #'+&''
#8' ")&' !!12 &,6')&' +)$--' 8#,' $'?' #8' ")&' +$ (' 88&' !&+6' 12#'' @& ' .'
!#'4 !"&(' ") 7&#8' @&8#,&' $' H&'&,$-' #1,"B%$," $-66@&' !$+) &,&(' ' $'('
8' $'?' 88 !&,' +)$--' !#'+",$ '' $'?' $,, $.&' "#' ",$4&-' @&?#'(' ")&'
3 +"$' !&' +2&! 8 &(' '' ")&' R1+" !&;+' E $,,$'"6' #,' +)$--' '#'' (+!)$,.&' ")&'
+$%&' '' (1&' %&' 8#,' ")& ,' &"1,'' #%&' #'' ")&' +$%&' 3 $?6' 8' '' @&'
2,$!" !$@-&6' &9!&2"' '' ")&' $+&' #8' %&,.&'!?6' 8#,' *) !)' ")&' R1+" !&'
+)$--')$4&' . 4&'' !&'!&6' #,' +)$--' !#%2&-' ")&' 3, 4&,' #8' $'?' $,, $.&'
"#' "$:&' 12' $'?' $, '&' #,' &,4$'' X&9!&2"' +1!)' $+' $,&' + !:[' #,' $'?'
E #%$'' "#' , (&' ")&,& '6' &9!&2"' '' $+&+' #8' %&,.&'!?' $+' $8#,&+$ (6' '
#,' +)$--' 8#,!&' $'?' #'+"$@-&6' @?' "),&$"&' ' .' E #,(+6' "#' 2,#4 (&' $((-&'
#,+&+' 8#,') %+&-8' #,' &,4$'"+6' A#,' +)$--' 8#,!&' #,+&+' 8,#%' ")& ,'
*'&,+6' #,' '' ' +)$--' 8#,!&' ")&' *'&,' "#' "$:&' $'?' #$(' .'
1'" -' ")&' +$%&' +)$--' @&' 8 ,+'' (1-?' *& .)&(6' 8' ")&' +$%&' +)$--' @&' ,&C1 ,&('
$'(' !$'' @&' (#'&' * ") '' $' ,&$+#'$@-&' %&66' #,' +)$--6' !#'",$,?' "#' ")&'
E --' #8' ")&' *'&,' #,') +' &,4$'"6' 2&,% '' $'?' 5&,+#'' *)$"+#&4&,' "#'
21'' $'?' .,&$"&,' #$('12#'' $'?' $,, $.&' ")$'' +' (,&!"&(' @?' ") +' !"6'
)&' +)$--' 8#,8& '' 8#,' &4&,?' 88&' !&' $'?' 1%' '#'' &9!&&(' .' 4&' 5#1'(+'
#,' -&++' ")$'' #,"?') -- '.+

' '(' @&' '' &'$!"&(6')$'' $'?' 5&,+#'' *)#' +)$--' 1'-$*81--?' +D#2736' . /
)$4&' '') +B' #,')&,' 5#++&++ #'' #,' D&&2 ' .6' #,' *)#' +)$--' :'#* ' .-?' C I /H"2E #4'
(&"$ '6' @1?6' #,' &9!)$' .&6' #,' #")&,* +&' ,&!& 4&6' $'?' ,%+6' %%1B'
' "#'' ' -#")&+6' $2>' #,' #")&,' - "$,?' 1, ' "1,&' #,' 22# '"%&'"+6' $, '&^7'
8,#%' $'?' $, '&' #,' $, '&' 3&+&,"&,6' #,' $'?' #")&,' 5&,+#'6' 12#'' $'?'
!!#1'' #,' 5,&"&'!&' *)$"+#&4&,6' #,' $'?' #")&,' ," !-&+' @&-#' . ' .' "#'
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%&'"$-' &!&++$, &+6' $!!#,(' .' "#' ")&' 1+"#%' #8' ")&' #?$-' $, '&'
#,2+6' #,' +)$--' !)$' .&' #,' !$1+&' ")&' #-#1,' #,' $,:' #8' $'?' +1!)'
-#")&+6' 22# '"%&'"+6' #,' &!&++$, &+' "#' @&' !)$' .&(' #,' (&8$!&(6' +)$--'
8#,8& '' 8#,' &4&,?' +1!)' 88&' !&' ")&' 1%' #8' &'' 5#1'(+6' "#.&")&,' * ")'
,&@-&' ")&' <$-1&' #8' $--' #,' $'?' #8' ")&' +&4&,$-' ," !-&+' #8' *) !)' +1!)'
88&' (&,' +)$--' +#' @&!#%&' 2#++&++&(' ' $'(' 8' $'?' !,&(@-&' 5&,+#'' +)$--'
2,#4&' #'' $")' @&8#,&' $' R1+" !&' #8' ")&' 5&$!&' $' A&$+#'$@-&' $1+&' "#'
+1+2&!'' ")$"c$'?' 5&,+#'')$+' '') +' #,')&,' 5#++&++ #'6' #,' #'') +' #,')&,'
5,&% +&+6' $'?' 5,#2&,"?' #8' ")&' 3&+!, 2" #'')&,& 'B@&8#,&' (&+!, @&(6' #''
#,' * ")' ,&+2&!'' "#' *) !)' $'?' +1!)' 88&' !&' +)$--')$4&' @&&'' !#%% ""&(6'
")&' R1+" !&' %$?' .,$''' $' E $,,$''' "#' +&$,!)' 8#,' +1!)' 5,#2&,"?' $+' '' ")&'
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"$:&6ʿ : --6ʿ #,ʿ "R&+", ?ʿ $'?ʿ H$%&ʿ #,ʿ +)ʿ * ") 'ʿ ")&ʿ V' "&(ʿ D ' . (#%6ʿ
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* ") 'ʿ *)#+&ʿ R1, +(>!" # ʿ $'?ʿ $, '&ʿ)$--ʿ @&ʿ C1$,"&,&(6ʿ %$?ʿ
+1%%#'ʿ +1!)ʿ $, '&ʿ @&8#,&ʿ) %6ʿ *) !)ʿ 1%%#'+ʿ +1!)ʿ $, '&ʿ
+ʿ)&,&@?ʿ ,&C1 ,&(ʿ "#ʿ #@&?6ʿ $'(ʿ "$:&ʿ @ +ʿ 9$% '$" #'ʿ 'ʿ E , " ' . 6ʿ
12#'ʿ $")6ʿ "#1!) ' .ʿ ")&ʿ 5-$!&ʿ #8ʿ) +ʿ -$+"ʿ -&.$-ʿ &""-&%&'"ʿ 'ʿ
. ʿ $'(ʿ +1!)ʿ R1+" !&ʿ +)$--ʿ . 4&ʿ $'ʿ $""&+"&(ʿ #2?ʿ #8ʿ +1!)ʿ
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$'?ʿ H&'&,$-ʿ #,ʿ T1$,"&,ʿ &++ #'+ʿ #8ʿ ")&ʿ 5&$!&6ʿ $-")#1.)ʿ +1!)ʿ $, '&ʿ
)&ʿ (&$(ʿ #,ʿ $@+&'"ʿ 8,#%ʿ ")&ʿ D ' . (#%ʿ 5,#4 (&(ʿ $-*$?+6ʿ ")$"ʿ 'ʿ !$+&ʿ
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")&'6ʿ #'ʿ +1!)ʿ 9$% '$" #'ʿ #,ʿ +1!)ʿ $""&+"&(ʿ #2?ʿ @& ' .ʿ 2,#(1!&(6ʿ
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* -81-ʿ $'(ʿ ! * ,12"ʿ 5&,>1,?6ʿ $'(ʿ +)$--ʿ @&ʿ - $@-&ʿ "#ʿ +1!)ʿ 5$%+ʿ $'(ʿ
5&'$-" &+ʿ $+ʿ 5&,+#'+ʿ !#'4 !"&(ʿ #8ʿ * -81-ʿ $'(ʿ !#,,12"ʿ 5&>1,?ʿ $,&ʿ #,ʿ
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#,ʿ",$'+8&,ʿ $'?ʿ !&'!&ʿ 8#,ʿ +&-- ' .ʿ @?ʿ &"$-ʿ $'?ʿ 2 , "6ʿ 7 ,6ʿ E '&6ʿ
(&,6ʿ #,ʿ 5&,,?ʿ "#ʿ $'?ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ $22-? ' .ʿ @,ʿ ")&ʿ +$%&ʿ *)#ʿ
+)$--ʿ)#-(ʿ $'?ʿ $'"&&'ʿ 1'(&,ʿ $'?ʿ &$+&ʿ ")&,&! 6ʿ #,ʿ . ,&&%&'"ʿ
* ")ʿ $'?ʿ 3&2$,"%&'"ʿ #,ʿ #")&,ʿ 1")#, "?ʿ 1'(&,ʿ ")&ʿ +$ (#,(ʿ .)ʿ
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"#ˁ ")&ˁ +$%&ˁ "$"&ˁ $'(ˁ #'("#'ˁ $+ˁ)&6ˁ +)&6ˁ #,ˁ ")&?ˁ *&,&ˁ 'ˁ @&8#,&ˁ
+1!)ˁ &.-&!"ˁ #,ˁ % ++ #'6ˁ $'(ˁ +)$--ˁ @&ˁ $'(ˁ @&ˁ (&&%&(ˁ $'(ˁ $(N
>1(.&(ˁ "#ˁ)$4&ˁ (1-?ˁC1$- 8 &(ˁ) %6ˁ)&,6ˁ #,ˁ ")&%+&-4&+ˁ $!!#8('.ˁ "#ˁ
")&ˁ $@#4&B%&'" #'&(ˁ !"+ˁ $'(ˁ &4&,?ˁ #8ˁ ")&%ˁ $'(ˁ ")$"ˁ $--ˁ -&!" #'+ˁ
#86ˁ $'(ˁ !"+ˁ (#'&ˁ #,ˁ "#ˁ @&ˁ (#'&ˁ @?ˁ $'?ˁ +1!)ˁ 5&,+#'ˁ #,ˁ 5&,+#'+6ˁ
#,ˁ @?ˁ 1"@ "?ˁ (&, 4&(ˁ 8,#%ˁ) %6ˁ)&,6ˁ #,ˁ ")&%6ˁ $,&Bˁ$'(ˁ +)$--ˁ @&ˁ
#8ˁ ")&ˁ +$%&ˁ #,!&ˁ $'(ˁ <$- ("?ˁ $+ˁ ")&ˁ +$%&ˁ #,ˁ $'?ˁ #8ˁ ")&%ˁ *#1-(ˁ
)$4&ˁ @&&'ˁ 8ˁ +1!)ˁ 5&,+#'ˁ #,ˁ 5&,+#'+ˁ ,&+2&!" 4&-?ˁ)$(ˁ "$:&'ˁ ")&ˁ
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'7 '-?ʿ"# ")#+&ʿ *)#)$4&ʿ #%""&(ʿ "# %$:&ʿ$'(ʿ EIOEH/ OD3"D $")+6ʿ Z!ʿ ,&C1 ,&(ʿ@? ")&ʿ /E" H3 #8ʿ/ ''&

ʿ '(ʿ *)&,&$+ʿ +&4&,$-ʿ >5&,+#'+ʿ *&--ʿ $88&!"&(ʿ "#ʿ +ʿ $>&7?A+ʿ H#4&,'%&'"6 ('(ʿ "#ʿ ")7ʿ V' "&(ʿ)1,!)ʿ #8ʿ. ʿ $'(ʿ ʿ)$4&6ʿ "),#1.)ʿ .'#,$'!&ʿ#8ʿ")&ʿ $*6ʿ '&.-&!"&(6ʿ#,ʿ@&&'6ʿ@?ʿ !:'&++ʿ #,ʿ#")&,ʿ1'$4# ($@-&ʿ $1+&+6ʿ2,&4&'"&(ʿ 8,#%ʿ "$: '.ʿ$'(ʿ+1@+!, @'.ʿ ")&ʿ 3&!-$,$"#'ʿ $!!#,('.ʿ "#ʿ ")&ʿ 3 ,&!"#'+ʿ #8ʿ$'ʿ !"ʿ 2$++&(ʿ 'ʿ ")&ʿ 5$,- $%&'"#8ʿ ʿ 'ʿ")&ʿ &!#'(ʿ &$,ʿ#8ʿ")&ʿ & .'ʿ#8ʿ &,ʿ -$"&ʿ $>&+7ʿ T1&&'ʿ ʿ '""1-&(ʿ ʿ ʿ ʿ ʿ ʿ ʿ $ ʿ ʿ -ʿ@&ʿ "")&,&88 ,&ʿ81,")&,ʿ&'$!"&(Aʿ)$" $--ʿ5&, %+ʿ *)#)$4` '!1,,&(ʿ$'?ʿ5&'$-"?#,ʿ '!2! "?ʿ 'ʿ ")&ʿ +$ (ʿ,&! "&(ʿ !" %&'"#'&(6ʿ@?ʿ '&.-&!" '.ʿ "#ʿ C1$- 8?ʿ ")&%+&-4&+ʿ $!!#,('.ʿ "# ")&ʿ +$ (ʿ !"6 \+)$--ʿ @&ʿ $'(ʿ $,&ʿ)&,&@?ʿ '(&%' 8&(6ʿ 8,&&(6ʿ $'(ʿ (+N !)$,.&(ʿ88#%ʿ $--ʿ '!$2$! "&+6ʿ 3 +$@ -"&+6ʿ 5&'$-"&+6ʿ $'(ʿ #,8& "1,&+ʿ '!1,,&(ʿ @?ʿ,&$+#'ʿ #8ʿ+1!)ʿ % ++#" #,ʿ &.-&!"ʿ $+ʿ $8#,&+$ (ʿ $>(ʿ K")$")#ʿ !" (#'&ʿ@?ʿ$'?ʿ#8ʿ")&%Aʿ '#" ?&" $4# (&(6ʿ +)$--ʿ @&ʿ C1&+N "#'&(ʿ#,ʿ$4# (&(ʿ@?ʿ,&$+#'ʿ#8ʿ+1J7ʿ % +"#'ʿ#,ʿ &.-#!"6ʿ@1"")$" $--ʿ +1!)ʿ !"+ʿ+)$--ʿ@&ʿ$'(ʿ$,&ʿ)&,&@?ʿ(&!-$,&(ʿ"#ʿ@&ʿ$+ʿ.##(ʿ$'(ʿ&88&!"17(ʿ $+ʿ 8ʿ+1!)ʿ5&,+#'+ ,&+2&!"4&-?ʿ)$(ʿ "$:&' $'(ʿ+1@+!, @&(ʿ")&ʿ +$ (ʿ $")6ʿ$'(ʿ%$(&ʿ$'(ʿ ,&2&$"&(ʿ$'(ʿ (&+!, @&(ʿ ")&ʿ +$ (ʿ3&!-$,$"#'6ʿ $" +1!)ʿ %&ʿ $'(ʿ5-$!&ʿ $'(ʿ $''&,ʿ $+ʿ 'ʿ")&ʿ +$ (ʿ !" +ʿ %&'"#'&(ʿ $'?ʿ ") '.ʿ 'ʿ")&ʿ +$ (ʿ !" "#ʿ ")&ʿ !#'",$,?ʿ '#"* ")+"$'('.] 5,#4 (&(ʿ $-*$?+6ʿ ")$" +1!)ʿ 5&,+#'ʿ #,ʿ5&,+#'+ʿ (#ʿ$'(ʿ +)$--ʿ "$:&ʿ$1(ʿ+1@+!, @&ʿ ")&ʿ +$ (ʿ $")+6ʿ$'(ʿ%$:&6ʿ,&2&$"6ʿ$'(ʿ+1@+!, @&ʿ")&ʿ+$ (ʿ -&&-$,$"#'6ʿ 'ʿ+1!)ʿ $''&,ʿ$'(ʿ #,%Aʿ$'(ʿ 'ʿ +1!)ʿ5-$!&ʿ#,ʿ5-$!&+ʿ,&+2&!"4&-?6ʿ $+ʿ$,&ʿ (,&!"&(ʿ $'(ʿ $22# '"&(ʿ @?ʿ ")&ʿ +$ (ʿ -$+"B, !"&(ʿ !"6ʿ#'ʿ#,ʿ @&8%7&ʿ")&ʿ *&'"?B8 8")ʿ 3$?ʿ#8ʿ ʿ '&ʿ")#1+$'(ʿ& .)")1'(,&(ʿ $'(ʿ") ,"?A8#V,

2" "#ʿ 'Aʿ (&%' 8?ʿ &,Aʿ R1(.%&'" 6ʿ+ʿ.4&'ʿ

ʿ 5,#4 (&(ʿ$-*$?+6ʿ $'"ʿ @&ʿ "81,")&,ʿ&'$!"&(ʿ)$" ")+ʿ !"6ʿ 7'?ʿ") '.ʿ)&,& 'ʿ!#'"$ '&(6ʿ+)$--ʿ '#" &9"&'(ʿ #,ʿ@&ʿ !#'+",1&(ʿ "#ʿ &9"&'(ʿ "#ʿ '(&%' 8?ʿ$'?ʿ5&,+#'ʿ $.$ '+" *)#%ʿ 8 '$-ʿR1(.%&'" +)$--ʿ)$4&ʿ@&&'ʿ .4&'ʿ '$'?ʿ !"#'ʿ#8ʿ 3&@"6ʿ 7 6ʿ5-$ '"6ʿ#,ʿ '8#,%$"#'6 'ʿ$""?ʿ#8ʿ +ʿ $>&+"?;+ʿ #1,"+ʿ#8ʿ &!#,(6ʿ8#,ʿ$'?ʿ5&'$-"?ʿ '!1,,&(ʿ@?ʿ)$4 '.ʿ'&.-&!"&(ʿ"#ʿC1$- 8?ʿ) %+&-8ʿ*") 'ʿ")&ʿ %&ʿ-%"&(ʿ@?ʿ $*

#" "#ʿ&9Bʿ "7Aʿ7"Aʿ * ")#1" :.$-ʿ T1$- 8 !$"#'6ʿ

<ʿ 5,#4 (&(ʿ$-*$?+6ʿ$'(ʿ@&ʿ "81,")&,ʿ&'$!"&(ʿ)$" '#") '.ʿ!#)Bʿ 87 '&(ʿ 'ʿ") +ʿ !" +)$--ʿ&9"&'(ʿ#,ʿ@&ʿ!#'+",1&(ʿ "#ʿ&9"&'(ʿ "#ʿ&9&%2" R1+" !&ʿ#8ʿ")&ʿ5&$!&ʿ*") 'ʿ ʿ(ʿ8,#%ʿ ")&ʿ5&'$-"&+ʿ "#ʿ *) !)ʿ)&ʿ +ʿ+1@>&!"ʿ8#,ʿ'#" '.ʿ$!"ʿ+1!)ʿ * ")#1"@&ʿ '.ʿ2#++&++&(ʿ#8ʿ")&ʿ T1$- 8 !$"#'+,&C1 ,&(ʿ@?ʿ")&ʿ $*+ʿ'#*ʿ 'ʿ8#,!&

GO EE #Eʿ "A77%$,@ "$%2+ʿ$8"&,ʿ OD277 ZDG @? $*ʿ

<ʿ '(ʿ*)&,&$+ʿ")&ʿ 22# '"%&'" #8ʿ (4&,+ʿ -&,:+ʿ #8ʿ")&ʿ5&$!&6 #*'ʿ -&,:+6ʿ $'(ʿ #")&,ʿ 51@-!ʿ 88!&,+6ʿ $'(ʿ ")&ʿ (%++#'ʿ#8ʿ +-4&,+ʿ &%@&,+ʿ $'(ʿ 88!&,+ʿ #8ʿ "&+6ʿ #,2#,$"#'+Aʿ $'(ʿ #,#"7ʿ #*'+ʿ 'ʿ ʿ(ʿ ʿ#,ʿ")&ʿ '",&+ʿ#8ʿ+1!)ʿ (%+Bʿ +#'+ʿ 'ʿ")&ʿ #1," ##:+6ʿ #--+6ʿ#,ʿ &!#,(+ʿ#8ʿ+1!)ʿ "&+6ʿ #2#,$Bʿ "#'+6ʿ$'(ʿ #,#1.)ʿ #*'+6ʿ*)!)ʿ@?ʿ+&4&,$-ʿ !"+ʿ $,&ʿ ,&!"&(ʿ$'(ʿ ,&C1 ,&(ʿ "#ʿ@&ʿ +"$%2&(6ʿ %$?ʿ '#")$4&ʿ @&&'ʿ 2,#4 (&(ʿ#,ʿ")&ʿ +$%2&(6ʿ#,ʿ%$?ʿ)$4&ʿ@&&'ʿ-#+"ʿ #,ʿ% +-$ ('ʿ @&ʿ 81,")&,ʿ &'$!"&(ʿ)$" 8#,ʿ")&ʿ &-&8#ʿ+1!)ʿ5&,+#'+ʿ *)#+&ʿ 22# '"%&'"+ $'(

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+1!)ʿ 5&,+#'+ʿ 'ʿ ʿ(ʿ#,ʿ ʿ #'ʿ #,ʿ @&8#,&ʿ")&ʿ *&'"?Bʿ
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31" &+ʿ 8 ,+"ʿ 2$?$@-&ʿ #,ʿ "#ʿ)$4&ʿ @&&'ʿ 2$ (ʿ #'ʿ +1!)ʿ 22# '"%&'"+6ʿ
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-&,:ʿ #8ʿ ")&ʿ 5&$!&6ʿ #*'ʿ -&,:6ʿ #,ʿ #")&,ʿ 51@- !ʿ 88 !&,6ʿ #,ʿ &%@&,ʿ
#,ʿ 7@&,+6ʿ 88 !&,ʿ #,ʿ 88 !&,+ʿ #8ʿ +1!)ʿ "&+6ʿ #,2#,$" #'+6ʿ $'(ʿ
#,#1.)ʿ #*'+ʿ,&+2&!" 4&-?6ʿ "#ʿ $--ʿ '"&'"+ʿ $'(ʿ 51,2#+&+6ʿ $'(ʿ +)$--ʿ
$'(ʿ %$?ʿ)#-(ʿ $'(ʿ &'>#?ʿ $'(ʿ &9&!1"&ʿ +1!)ʿ 88 !&+6ʿ #,ʿ $'?ʿ #")&,ʿ
88 !&ʿ #,ʿ 88 !&+ʿ '"#ʿ *) !)ʿ)&ʿ #,ʿ ")&?ʿ)$")ʿ #,ʿ)$4&ʿ @&&'ʿ &-&!"&(6ʿ
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5,&(&!&++#,+6ʿ 'ʿ +1!)ʿ "&+6ʿ #,2#,$" #'+6ʿ #,ʿ #,#1.)ʿ #*'+ʿ $+ʿ
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'!2! "&+6ʿ 3 +$@ - "&+6ʿ #,8& "1,&+6ʿ 5&'$-"&+6ʿ $'(ʿ 3$%$.&+ʿ @?ʿ
,&$+#'ʿ #8ʿ $'?ʿ +1!)ʿ % ++ #'ʿ $'(ʿ'#'&ʿ #8ʿ) +ʿ #,ʿ")&ʿ !"+ʿ +)$--ʿ @&ʿ
C1&+" #'&(ʿ #,ʿ $4# (&(ʿ @?ʿ ,&$+#'ʿ #8ʿ")&ʿ +$%&

< ʿ '(ʿ *)&,&$+ʿ %$'?ʿ 5&,+#'+ʿ *)#ʿ %$?ʿ)$4&ʿ 2$ (ʿ ")&ʿ 2,#2&ʿ #GD O # 36ʿ 3 ʿ
"$%2ʿ 31" &+6ʿ &")&,ʿ @&8#,&ʿ #,ʿ* ") 'ʿ 9ʿ #'")+ʿ $8"&,ʿ")&ʿ 9&!1" #'ʿ +D/E #Eʿ Z" ʿ
#8ʿ ")&ʿ #'",$!"+ʿ 'ʿ E, " '.ʿ&'"&,&(ʿ '"#ʿ @?ʿ ")&%ʿ "#ʿ +&,4&ʿ $+ʿ -&,:+ʿ "2FDʿ C2 Gʿ 3"Dʿ
"#ʿ ""#,' &+ʿ #,ʿ #- ! "#,+6ʿ !, 4&'&,+6ʿ #,ʿ #"$, &+ʿ 51@- !ʿ 'ʿ ʿ * I3 DEʿ #
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"#ʿ @&ʿ 88 &(ʿ 'ʿ ")&ʿ 2,#2&,ʿ #8ʿ ")&Bʿ $!"1$-ʿ 9&!1" #'ʿ #8ʿ +1!)ʿ 3 ʿ ED/FDʿ 2Eʿ
#'",$!"+6ʿ $'(ʿ)$4&ʿ 7+#ʿ #% ""&(ʿ "#ʿ !$1+&ʿ +1!)ʿ #'",$!"+ʿ $'(ʿ")&ʿ (7D/]Eʿ 3 ʿ
'(&'"1,&+ʿ ")%!#8ʿ "#ʿ)&ʿ &',#--&(ʿ * ") 'ʿ ")&ʿ %&ʿ 'ʿ *) !)ʿ ")&ʿ 33 /# DEʿ
+$%&ʿ #1>7"ʿ "#ʿ)$4&ʿ @&&'ʿ (#'&ʿ $'(ʿ %$'?ʿ #- ! "#,+6ʿ ""#,' &+6ʿ H !ʿ O I 3ʿ "2FDʿ
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&," 8 !$"&+6ʿ #,ʿ "#ʿ &'"&,ʿ ")&ʿ +$%&ʿ 'ʿ ")&ʿ 2,#2&,ʿ 88 !&6ʿ $'(ʿ %$'?ʿ H2 I EDʿ . . ^
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&,%' '& ")#1+$'('& .)")1'(,&('$'('") ,"?B8#1,6 +)$-- !$1+& +1!)'
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@&&'' %$(& $'(' 8 -&(6 '' (1& %&6 +)$-- @& $'(' +)&,&@? 'N
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!"+ #8 5$,- $%&'" %&'" #'&(6 $'(' '!1,,&(' #,' "# @& '!1,,&(' 8#,'
#,' @? ,&$+#'' #8 +1(' &.-&!" #,' % ++ #'' $'('&4&*' +1!)' 88 ($4 "
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@&8#,& ")& ,+" 3$? #8 9 *' &,%' '& ")#1+$'('& .)")1'(,&('
$'('") ,"?B8#1,6 +)$-- @& $+ &88&!"1$- "# $-- '"&'"+ $'(' 51,2#+&+ $+
8")& +$%&)$(' @&&'' %$(& $'(' 8 -&(' * ") '' ")& ,&+2&!" 4& %&+'
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H D36!L ˁ 2#Gˁ 3"D /ˁ IHHDEE /E!ˁ 2Eˁ 3"D/D #ˁ Eˁ OD#^
3 #DGˁ 2#Gˁ C/ F GDGˁ N 2#Gˁ . /ˁ 3"Dˁ OD33D/ˁ D#2O7 #4ˁ
2#Gˁ DOC ZD/ #4ˁ 3"DOˁ 3 ˁ H2//6 #ˁ 3"Dˁ H"2/ 32O7Dˁ
2#Gˁ IED.I7ˁ *DE 4#Eˁ .ˁ3"Dˁ E2ODˁ H D36

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)& +)$--' ,&+2&!" 4&-?)$4& @&&'' $22# '"&(6 #,' @? $'? ''1$-' #1,"6
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22# '"%&'" $'(' &%#4$-' $" 5-&$+1,& #8 $--' #,' +# %$'? #")&,' &,N
4$'"+' $'(' '8&, #,' 88 !&,+' #8")& #,2#,$" #'' $+' ")& #%% ""&& 8#,'
")& %& @& '.' -V$? ") ':' '&!&++$,? "# &%2-#?6 *(")' +1!)' $-$,?
$'(' E$.&+' $+' +)$--' @& ")#1.)" , .)"6 %$? @& %$(& @? ")& H&'&,$-'
#%% ""&& $" $'? E&&:-? &&" '.' #8 #%% ""&& $" *) !)'),&& #,'
%#,& &%@&,+' +)$--' @& 2,&+&'" $'(' 4#"& ")&,& '' $--' *) !)' $-$,?
$'(' E$.&+' ")& ,&$+1,&,' 8#,' ")& %& @& '.' +)$--' 2$? $'(' %$:&
.##(' #1'" #8")& 1'(+' $'(' 88&!"+' #8")& +$ (' #! &"?

. ' ' . . HD/' . ' 6 < ' ' (' @&' "' 81,")&,' &'$!"&(')$"' '#')$2-$ '6' 5)?+ ! $'6'
")&' (/C /2' 1, .&#'6' 2#")&!$,?6' #- ! "#,6' &! ,&"$,?' X&9!&2"'U$' ' #'#,$,?'
3, #' 3 ' F 3D' &! ,&"$,?[6' #,' #--&!"#,6' #,' #")&,' 88 !&,' (,' &' ,$'" #8' ")&' #,2#N
Z " 7E3' "D' ,$" #'6' *)&")&,' +12&, #,' #,' '8&, #,6' +)$--' @&' &'" "-&(' "#' 4#"&' & ")&,' ''
H #3 #I DE' # #'1' ""&&6' #,A$"' $'?' ' '1$-6' T1$,"&,-?6' (>#1,'&(6' #,' 2&! $-'
' . HD H&'&,$-' #1,"6' +#-#' .'$+')&' +)$--' !#'" '1&' '' 88 !&

/D2E I /D/!' <' ' (' @&' "' 81,")&,' &'$!"&(6')$"' T '"-' #")&, * +&' (,&!"&(' @?'
Z3"' 3"D' +#%&' 1-&6' ,(&,6' #,' ?&' $*' "#' @&' %$(&' $+' $8#,&+$ ([' "' +)$--' $'('
(#ED#3' .' %$?@&' -$*81-' "#' $'(' 8#,' ")&' ,&$+1,&,' 8#,' ")&' %&' @& ' .' #8' ")&' +$ ('
3"D' (#')&,&@?7&,& "&(' #,2#,$" #'6' $'(')&' +')&,&@?' $1")#, L&('$'(' ,&C1 ,&(6'
O 33DD!' 3 ' 8,#%' %&' "#' %&A' @?' $'(' * ")' ")&' #'+&'"' $'(' 22,#@$" #'' #8' ")&'
#FDE3' #' 3"D' #%% ""&&' ")&,&#8' 8#,' ")&' %&' @& ' .6' #,' ")&' %$>#,' 5$,"' #8' +1!)'
+I O7 H' A I #GE' #%% ""&&' 2,&+&'"' $"' $'?' V+1$-' &&" ' .' #8' #%% ""&&6' X@1"' ")&'
/' 3"D/' 1%@&,' #8' #%"' ""&&B%&'' @?' *)#%' +1!)' #'+&'"' $'(' 22,#@$ #''
DH I / 3 DE' 2#6' +)$--' @&' 74&'' '#"' "#' !#'+ 7' #8' -&++' ")$"' &'6[' +1!)' #'+&'"' $'('
B #D6' 4 FD#' 22,#@$" #'' "#' @&' "&+" 8 &(' '' E , " ' . ' 1'(&,' ")& , ' $'(+6' "#' -$?' #1"'
. /' 3"D' +I /^ $'(' '4&+"' $--' #,' $'?' +1!)' 1%' #,' 1%+' #8' #'&?' $+')$")' #,')$4&' @&&''
C EDE' #' 3" E' . 4&'6' (&4 +&(6' #,' @&C1&$")&(6' #,' +)$--' $"' $'?' %&' #' %&+')&,&N
H3' O D#^ $8"&,' @&' 2$ (6' . 4&'6' (&4 +&(6' ,' @&C1&$")&(6' @?' $'?' !)$, "$@-&' #,' *&--B'
3 #DG!' D&^ (+2#+&(' 5&,+#'' '/ 5&,+#'+' "#' $'(' 8#,' ")&' !)$, "$@-&' '(+6' '"&'"+6'
HDC3' E ' 3 IH"' $'(' 51,2#+&+' #8' ")&' +$ (' #! &"?6' #,' $'?' #' &+' $!!1%1-$"&(' #,'
2E' 3"D' & ')&,&$8"&,' "#' @&' ,&!& 4&(' #,' $!!1%1-$"&(' @?' ")&' +$ (' #! &"?6' #,' $'?'
4D#H DE' .' 5$,"' #8' +1!)' #' &+6' X#")&,' ")$"' $'(' &9!&2"' +1!)' $'(' +#' %1!)'
3"D' (/C /2^ ")&,&#8' $+' ")&' 9 .&'! &+' #8' ")&' +$ (' #,2#,$" #'' +)$--' !$--' 8#,' ")&'
3 #' E"277' %%&($"&' 22- !$" #'' #,' 92&'("1,&' #86[' '' $'?' #8' ")&' 5$,- $N
3D\ I /D %&'"$,?' "#! :+' #,' 51@- !' 1'(+' #8' '(' #,' $"' '"&,&+"' #''
H#4&,'%&'"' #,' &$-' &!1, "&+' '' . ' #,' / ' '')+' #*''
$%&&6' #,' '' ")&' $%&+' #8' $'?'),&&' #,' %#,&' #%% ""&&B%&'6' $+' +)$--'
@&' @?' ")&' #%% ""&&' (8&!"&(6' $'(' 8,#%' %&' "#' %&6' * ")' +1!)'
#'+&'"' $'(' 22,#@$" #'' $+' $8#,&+$ (6' "#' %$:&' +$-&' #86' $'(' "#' $-"&,6'
",$'+8&,6' 4$,?6' $'(' ",$'+2#+&' +1!)' "#! :+6' 1'(+6' $'(' &!1, "&+' 8#,'
'/ '"#' #")&,' "#! :+6' 1'(+6' $'(' &!1, "&+' #8' $- :&' $"1,&6' #,' #")&,N
* +&6' $+' &&(' #,' !!$+ #1' +)$--' @&' #,' ,&C1 ,&B

B #DE' ' [7< ' ' (' @&' "' 81,")&,' &'$!"&(')$"' ")&' #' &+' $, + ' . ' 8,#%' #,'
2/ E #4' 3"D/D^ @?' $'?' $-&' #,' $-&+6' #,' # %1!)' ")&,&#8' $+' +)$--' '#"' @&' $.$ '' -$ ('
O6!' 2#G' 3"D' #1"' $'(' '4&+"&(6' * ")' +1!)' #'+&'"' $'(' 22,#@$" #'' $+' $8#,&+$ (6'
* F GD#GE!' '' +#%&' ")&,' #8' ")&' "#! :+6' 1'(+6' $'(' &!1, "&+' @&8#,&' %&'" #'&(6A'
H !' 3 ' OD' $'(' $-+#' $--' ")&' 3 4 (&'(+6' '"&,&+"+6' $'(' $''1$-' 5,#!&&(+' *) !)'
2CC7 DG' . /' ' +)$--' 8,#%' %&' "#' %&' $, +&' 8,#%' +1!)' 1'(+6' +)$--' 8,#%' %&' "#'
3"D' +I /C EDE' %&' @&' $22- &(' "#' $'(' 8#,' ")&' +$ (' !)$, "$@-&' V+&+6' '(+6' '"&'"+6'
.'3" E' H3 $'(' 51,2#+&+

#1!) ' .'")&' <- ' ' (' "#' ")&' '"&'"')$"' ")&,&' '&4&,' %$?' @&' *$'" ' .' $' !#%B'
7DH3 #' . ' ; 2&"&''' 1%@&,' #8' &%@&,+' #8' ")&' +$ (')&,&@?B&,&!"&(' #,2#,$" #'6'
B D O O D/E' 7'(' 8#,' 2&,2&"1$" ' . ' ")&' 1!!&++ #'' ")&,&#8A' @&' "' 81,")&,' &'$!"&(6'
)$"' "' +)$--' $'(' %$?' @&' -$*81-' "#' $'(' 8#,' ")&' &%@&,+' #8' ")&' +$ ('
#,2#,$" #'' $"' $'?' H&'&,$-' #1,"' X& ")&,' ' '1$-6' T1$,"&,-?6' (N
>#1,'&(6' #,' 2&! $-' H&'&,$-6' #,' ")&' %$>#,' 5$,"' #8' ")&%' ")$"' +)$--' @&'
")&'' 2,&+&'"6')1"' ")&' 1%@&,' ")&'' 2,&+&'"' '#"' "#' !#'+ +' #8' -&++' ")$"'
8"&&'6[' "#' &-&!"' $'(' !)##+&' +#%&' #")&,' 8 ' $'(' $@-&' 5&,+#'' #,' 5&,N
+#'+' "#' @&' $' &%@&,' #,' &%@&,+' #8' ")&' +$ (')&,&@?B&,&!"&(' #,2#N
,$" #'6' & ")&,' $+' #'#,$,?' &%@&,+6' #,' '' ")&' ##%' #,' 5-$!&' #8' +1!)'
&%@&,+' $+' %$?')$4&' (&(' #88' #,')$4&' !&$+&(' "#' @&' 1@+!, @&,+' "#' #,'
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$ B ' ' (2C

6 < ' '(' @&' "' 81,")&,' &'$!"&(6')$"' $-' T1&+" #'+' 12#'' ")&' Y I DE3 #E' 3 '
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")&' 5,&+ (&''' #,')$,%$'' #8' ")&' &&" '.' +)$--')$4&' ")&' !$+" '.')$4,!-=" '.'
<#"&6' @1"' #")),%+&')&' +' '#" "#' 4#"&' $'(' 12#'' 3&%$'(' #8' $'?' 3D
4&' &%@&,+' #8' ")&' +$ (' #,2#,$" #'' 2,&+&'"7' $8' +1!)' H&'&,$-' 277 3'
K #1," #,' #%% ""&&' ,&+2&!" 4&-?6' ")&' +$%&' +)$--' @&' (&"&,% '&(' @?'
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' '(' @&' "' 81,")&,' &'$!"&(')$"' ")&' &%@&,+' #8' ")&' +$ (' D#D/27
#,2#,$" #'6' $"' $' H&'&,$-' #1,"6' #,' ")&' %$>#,' 5$," #8' ")&%' 2,&+&'' (I/3' D O ^
$"' +1!)' H&'&,$-' #1," X@1" +1!)' &%@&,+' 2,&+&'' '#" "#' !#'+ +" #8' C ZD/DG' 3 '
-&++' ")$'' 8"&&'[6' +)$--')$4&' 5#*&,' 8,#%' %&' "#' %&' $'(' $" $--' . 77 I C' 2^
%&+' "#' 8 -' 12' $'?' <$!$'!?' #,' <$!$'! &+' '' ")&' #%% ""&&6' $'(6' '' H2#H DE' #
!$+&' ")&' #%% ""&&' +)$--')$4&' '&.-&!"&(' #,' #% ""&(' +#' "#' (#6' "#' (0 0 33DD!'
$22# '' +1!)' +12&, #,' 88 !&,+' $'(' 5&,+#'+' $+' ")&' &%@&,+' !#'+" N 2#G'3 '2CC #3'
"1" '.' $' H&'&,$-' #1," +)$--' ") ':' '&!&++$,?' "#' &%2-#?' 8#,' ")&' E I H"' '.. HD/E!'
51,2#+&+' $'(' '' ")&' 9&!1" #''#8' ") +' !"6' $'(' 8,#%' %&' "#' %&' ('2E' 3"D'
"#' +1+2&'(' #,' ,&%#4&' +7'?' 88 !&,' #,' &,4$'' #8' #,' &%2-#?&(' @?' ")&' (0 0 33DD'
+$ (' #,2#,$" #'6' $'(' "#' B&&&,' @$!:' "#' ")&' #%% ""&&' "#' $22# '' E"277 "2FD'
$'#")&,' '+"&$(' $'(' '' !$+&' #8' $'?' 22# '"%&'' #8' $' +12&, #,' #D47DH3DG' 3 '
88 !&,' "$: '.' 2-$!&' $"' $' H&'&,$-' #1,"6' +1!)' H&'&,$-' #1," ' $?6' 2CC #3!' 2#G'
#1" #8' ")&' #' &+' "#' @&' ,&!& 4&(' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' %$:&' 3 ' /D O FD' /'
,&$+#'$@-&' --#*$'!&+' "#' &4&,?' +1!)' 88 !&,' +#' $22# '"&(' $+' -$+" E I ECD#G' 2#6'
$8#,&+$ (' 8#,') +' &,4 !&+' @1"' +)$--' $'(' %$?' @&' -$*81-' "#' $'(' 8#,' '.. HD/
")&' H&'&,$-' #%% ""&&' X2,#4 (&(' ")$"' $'?' &4&'' #,' %#,&' #8' ")&%' (0 0 33DD'
!#'!1,' ")&,& '[' $"' $'?' E&&:-?' #,' #")&,' &&" '.6' 8#,' .##(' $'(' 0 26' E I ECD#G'
+188 ! &'' $1+&6' "#' +1+2&'(' #,' ,&%#4&' $'?' 88 !&,' #,' 5&,+#'' *)#' /' /D O FD'
+)$--')$4&' @&&'' $22# '"&(' @?' $' H&'&,$-' #1," '.. HD/E!' I C #
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' '(' @&' "81,")&,' &'$!"&(')$"' $--' $'(' &4&,?' 88 !&,' #,' &,4$'' #88 !&,+6' 8
#8' ")&' +$ (' #,2#,$" #'' +)$--' 8,#%' %&' "#' %&6' *)&'' ")&,&1'' "#' ,&B' /D\ I /DG!' "#'
C1 ,&(' @?' $'?' &4&'' #,' %#,&' #8' ")&' H&'&,$-' #%% ""&&6' %$:&' $'('
,&'(&,' "#' ")&' H&'&,$-' #%% ""&&' $",1&6' &9$!"6' $'(' 2&,8&!" !!#1'' '' $'4 *#7# AA
E, " '.' 1'(&,') +' #,')&,' $'(' #,' ")&' ' ,&+2&!" 4&' $'(+6' 12#'' $")6' ")&' (0 '
"#' @&' "$:&'' @&8#,&' *#' #,' %#,&' #8' ")&' +$ (' #%% ""&&' X*) !)' $")' 0 33DD '
$'?' *#' #,' %#,&' #8' ")&' +$ (' #%% ""&&' $,&')&,&@?' &%2#*&,&(' "#'
$(% ' +"&,[6' #8' $--' #' &+6' "#,&+6' $'(' 88&!" +' *) !)')&6' +)&6' #,' ")&?'
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(+@1,+&(6' #,' @&&'' &'",1+"&(' * ")' @?' 4 ,"1&' #8' ") +' !"' #,' @?' ,&$+#''
#8' ")&' ,&+2&!" 4&' 88 !&+' $'(' '' !$+&' $'?' #'&?' #,' 88&!"+6' ")&' 5,#N
2&,"?' #8' ")&' +$ (' #! &"?6' +)$--' ,&%$ '' '')&' #,' $'?' #8' ")&' $'(+6'
")&' +$%&' +)$--' @&' 2$ (' #,')$'(&(' #4&,' "#' ")&' H&'&,$-' #%% ""&&' #,'
"#' $'?' &4&'' #,' %#,&' #8' ")&%6' #,' "#' +1!)' 5&,+#'' #,' 5&,+#'+' $+' $'?'
&4&'' #,' %#,&' #8' ")&' H&'&,$-' #%% ""&&' +)$--' $22# '"' ,&!& 4&' ")&'
+$%&' $'(' '' !$+&' $'?' +1!)' 88 !&,' #,' #")&,' 5&,+#'' +)$--' '#' %$:&'
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"#' %$:&' +1!);5$?%&'' #,' 3&- 4&,?' $+' $8#,&+$ (6' ")&'' $'?' '&' #,'
%#,&' R1+" !&' #,' R1+" !&+' #8' ")&' 5&$!&' 8#,' ")&' ,&' #8' ")&' #1'' &+'
#8' 8' 0 ' #,' 8' #,' 8#,' ")&' "?' #8'
+)$--' $'(' %$?6' 12#'' #%2-$ '' "#')' %' #,' ")&%6' %$:&' 'C1 ,?'
#8' $'(' !#'!&,' '.' +1!)' 3&8$1-' '' $' +1%%$,?' E$?6' $+' *&--' @?'
#'8&++ #'' #8' ")&' 5$," &+' ")&%+&-4&+' $+' @?' ")&' &+" %#'?' #8' '&' '
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+$ (' R1+" !&' #,' R1+" !&+' +' $'(' $,&')&,&@?' &%2#*&,&(' $'(' ,&C1 ,&(' "#'
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1'"-')&'#,' +)&'+)$--')$4&' !#%2#1'(&('$'('$.,&&(' * ")' ")&' H&'&,$-'
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,$" #'' +)$--' '#" @&' #@- .&('"#' $!!#1'" * ")' ")&' H&'&,$-' #%% ""&&'
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&&$,6 $'(' $" +1!)' #")&,' %&' #,' %&+' $+')&' +)$--' @&' ")&,&1'"#'
,&C1 ,&('@?' ")&' 1("#,+')&8& 'B@&8#,&' '$%&(6 #,'"#' @&' '#% '$"&('$+'
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#' &+' ,&%$ ' '.' '')+' $'(+6 $'('",$'+8&,' $--' ")&' 1'(+' $'(' &N
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* I3 DE .'
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' '(' @&' "81,")&,' &'$!"&(')$" " +)$--' @&' ")&' 3 1"?' #8")&'
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HH I#3E!'
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3 ' OD' \ I DE^
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) !)' +)$--' @&' $1("&(' $'(' $--#&(' @?' ")&' 1("#,+' 8#,' ")&' %&'
@& '.6 #,' ")&' %$>#,' 5$," #8")&%6 $'(' *) !)' +)$--' @&' !#'8 ,%&('$" ")&'
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IG 3 /E .'
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#,' +1!)' #8' ")&%' $+' "#' ")&' H&'&,$-' #1," +)$--' +&&%6 %&&"6 #,' "#' &-&!"
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(&!- ' '.6 #,' @&!#% '.' '!2@-&' "#' $!" #8' $'?' 1("#,6 ")&' 1%@&,'
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12' $+' +2&&(-?' $+' %$?' @&6 $'('$' H&'&,$-' #,' 2&! $-' H&'&,$-' #1," @&'
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")&' +$ (')$, "?' @& '.' #@- .&(6 '' !$+&' #8' &-#'?' #,' +(&%&$'#,'
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H3ʿ O26 OD ʿ > ʿ #Gʿ OD% 3 . I /3"D/ %D#2H3DG!ʿ "23ʿ 3" Eʿ H3ʿ O 26ʿ ODʿ 2 O D#GDG!ʿ
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' ' ' 2 ' 3' E' 2 0 #4E3' 3"D/' 3" #4E' D#2H3DG!' 3"23'
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"2FD' ODD#' /' E"277 OD' H"2/4DG' I C # E323DE' # /D2G6' B #D6!' * DO3E!'
GE!' @2/DE!' B D/H"2#G dDE!' ("233D7E!' /' 3"D/' +D/E #27 E323D!' O6'
F /3 I D' .' 2# H3' C2EEDG' # 3"D' " /36 D 4"3"' - D2/' .' 3"D' = D 4# .'
> E' 723D' B %DE36' ? #4' ' ' " /G!' . /' 4/2#3 #4' 2# G' 3 ' > E'
B 25DE36' O6' 2' 2#G' 2&!' 2#G' Z" H"' "2FD' ODD#' H #3 # I DG' 2#G' 2/D' #
. /HD' I #3 7 3"D' ZD#36 . .3"' * 26' .' ' ' #D' 3" I E2#G' D 4"3' " I #^
G/DG' 2#G' 3" /36 3"/DD!' E"277 OD' H #3 # I DG!' 2#G' /2 EDG!' 7DF DG!' H 7^
7DH3DG!' 2#G' C2 G' I #3 ' > E' C/DED#3' B 25DE36' Z 3" # 3"D' C2HD' .' ' #D'
- D2/' ./ 0' 3"D' E2 G' ZD#36 . .3"' * 26' .' ' ' #D' 3" I E2#G' D 4"3'
" I #G/DG' 2#G' 3" /36 3"/DD' #G' Z"D/D2E' 3' E' D&CDG D#3' 3"23' 3"D' E2 G'
* I3 DE' E" I 7G' # 3' OD' H #3 # I DG' 2.3D/' 3"D' E2 G' ZD#36 . .3"' * 26' .'
' ' #D' 3" I E2#G' D 4"3' " I #G/DG' 2#G' 3" /36 3"/DD' D' 3' 3"D/D. /D'
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" ʾ * ʾ ʾ -ʾ 3"D/ʾ H3Eʾ ZD/Dʾ C2EEDG!ʾ /D723 #4ʾ 3 ʾ 37 Dʾ DGD O C3 #ʾ .ʾ3"Dʾ %22Gʾ 2&Nʾ #Gʾ Z"D/D2Eʾ O6ʾ F2/ IEʾ H3Eʾ #ʾ . /HDʾ 1ʾ /D 23 Kʾ 3 ʾ 3"Dʾ (I/3Eʾ .ʾ 2Zʾ 2#Gʾ \ I 36!ʾ 2#Gʾ 3"Dʾ =DH /GEʾ .ʾ 3O23ʾ +2/3ʾ .ʾ 3 "Dʾ # 3DGʾ ? #4G 0ʾ ,ʾ ʾ 3"Dʾ E2 Gʾ 2/ 0ʾ 2/Dʾ 2I37 / dDGʾ 2#Gʾ /D\ I /DGʾ 3 ʾ 2EHD/32 #ʾ 2#Gʾ . &ʾ 3"Dʾ (#3CD#E23 #ʾ .ʾ HD/32 #ʾ ' .. HD/Eʾ 2#Gʾ 3"D/Eʾ H ##DH3DGʾ Z 3"ʾ 3"Dʾ E2 Gʾ (I/3Eʾ /ʾ E32". E"OD#3 3ʾ 2#Gʾ 3 ʾ 2I3" / dDʾ 3"Dʾ EEIDʾ .ʾ B #D6ʾ . /ʾ 3ODʾ +26 0 D#3ʾ .ʾ EIH" ʾ (OCD#E23 #Eʾ /ʾ +2/3Eʾ 3"D/D .!ʾ 2#Gʾ 3"D/ʾ + ZD/Eʾ 2#Gʾ * I3 DEʾ 2/Dʾ O6ʾ E#H"ʾ H3Eʾ H #.D//DGʾ IC #ʾ 3"Dʾ E2 Gʾ 2/ 7EWʾ #Gʾ Z"D/D2Eʾ 3"Dʾ E2 Gʾ 2/ #Eʾ 2/Dʾ 27E ʾ DOC ZD/DG!ʾ O6ʾ F2/ IEʾ H3Eʾ #ʾ /D723 #ʾ 3 ʾ EI#G/6ʾ +IO7 Hʾ @ /]E!ʾ I 7G #4E!ʾ #GD/^ 32] #4E!ʾ /ʾ E32"7 E"OD %Eʾ #ʾ ʾ 3 ʾ 2I3" / dDʾ 3"Dʾ EEIDʾ .ʾ B #D6ʾ 3 Z2/Gʾ 3"Dʾ +26 0 D#3ʾ /ʾ C2/3ʾ +26 0 D#3ʾ .ʾ 3"Dʾ &CD#HDʾ .ʾ /DH3 #!ʾ = % / !ʾ /ʾ B 2 #3D#2#HDʾ .ʾ EIH"ʾ +IO7 Hʾ @ /]E!ʾ I 7G #4E!ʾ #GD/32] #4Eaʾ /ʾ E32O7 E"OD#3E!ʾ 2#Gʾ 3 ʾ 233D#Gʾ 3 ʾ 3"Dʾ DHI/ 36ʾ 2#Gʾ #3D/DE3ʾ .ʾ 3"Dʾ +IO7 Hʾ #ʾ C/ HI/ #4ʾ /ʾ D#. /H #4ʾ 3"Dʾ =DC26 0 D#3ʾ .ʾ B # DEʾ 2GF2#HDGʾ 3 Z2/GEʾ EIH"ʾ +I/C EDEʾ /ʾ E ODʾ .ʾ 3"DO!ʾ 2#Gʾ #ʾ C a DI/ #4ʾ /ʾ D#. /H #4ʾ 3"Dʾ +26 0 D#3ʾ .ʾ 3"Dʾ #3D/DE3ʾ 2HH/I #4ʾ IC #ʾ B # DEʾ GIDʾ #ʾ /DECDH3ʾ .ʾEIH"ʾ @ HEʾ /ʾ E ODʾ .ʾ3"DOʾ W #Gʾ Z"D/D2Eʾ 2#ʾ H3ʾ @2Eʾ C2EEDGʾ #ʾ 3"Dʾ A .3 D3"ʾ -D2/ʾ .ʾ 3"Dʾ =D 4#ʾ .ʾ > Eʾ B 25DE36ʾ 0 ʾM ʾ 3"Dʾ " /G!ʾ #3] I7DGʾ ʾ ʾ ʾ * ʾ > ʾ VU ʾ H Q ʾ

ʾ ʾ *ʾ ! ʾ ʾ H 372#Gʾ N 2#Gʾ 2# 3"D/ʾ H3ʾ Z2Eʾ C2EEDGʾ #ʾ 3"Dʾ A .3"ʾ -D2/ʾ .ʾ%3"Dʾ =D 4#ʾ .ʾ > Eʾ B 25DE36ʾ ? #4ʾ ʾ 3"Dʾ A I/3"!ʾ * ʾ ʾ ʾ ʾ * ʾ ʾ ʾ * ʾ ʾ V (ʾ

ʾ ʾ " ʾ * ʾ > ʾ ʾ ʾ ʾ ʾ ʾ H 3^ 72#GNʾ .D6ʾ Z" H"ʾ Z ʾ 72E3 /DH 3DGʾ H3Eʾ 3"Dʾ E2 Gʾ 2/ #Eʾ ZD/Dʾ 2I3" ^ / dDGʾ 2 /Gʾ G.3DH3DGʾ 3 ʾ EEIDʾ 3"D /ʾ +/DHDC3Eʾ /ʾ @2//2#3Eʾ 3 ʾ > Eʾ B 25DE36aEʾ =DHD FD/ʾ D#D/27ʾ #ʾ ʾ . /ʾ 3"Dʾ +26 0 D#3ʾ 2##I2776ʾ .ʾ HD/32 #ʾ IOEʾ 3 ʾ HD/32 #ʾ .ʾ 3"Dʾ +2/ H" 27ʾ B # E3D/Eʾ .ʾ 3"Dʾ ("I/H"ʾ .ʾ ʾ $ ' (ʾ .0% +26 0 D#3ʾ .ʾ ##ʾ 3 ʾ 3"Dʾ =DC/DED#323 FDEʾ .ʾ EIH"ʾ B O E3D ʾ Z" ʾ O26ʾ "Dʾ D#3 37DGʾ 3"D/D3 !ʾ 2#Gʾ .ʾ F2H2#3ʾ 3 CD#GE!ʾ . /ʾ ! 3"Dʾ +I/C EDEʾ 2#Gʾ "ʾ 3"Dʾ B 2##D/ʾ 3"D/D #ʾ ED3ʾ . /3"ʾ W #Gʾ Z"D/D2Eʾ 2#ʾ H3ʾ Z2Eʾ C2EEDGʾ #ʾ 3"Dʾ A .3"ʾ -D2/ʾ .ʾ 3"Dʾ =D 4#ʾ .ʾ > Eʾ B 2^ 5DE36ʾ ? #4ʾ D /4Dʾ 3"Dʾ A I/3"!ʾ #3 3I7DGʾ ʾ ʾ ʾ * ʾ 2Iʾ V ʾ ʾ H U ʾ

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ʾ ʾ O6ʾ Z" H"ʾ H3ʾ 3"Dʾ (O O EE #D/Eʾ . /ʾ OI 7G #4 2GG 3 #Eʾ +72HDEʾ % .ʾ @ /E" Cʾ #ʾ 3"Dʾ > 4"72#GEʾ 2#Gʾ E72#GEʾ .ʾ = ʾ 2/Dʾ G /DH3DGʾ 3 ʾ 2HH I#3ʾ 3 ʾ 3"Dʾ E2 Gʾ 2/ #Eʾ .ʾ &H"D\IDʾ/ʾ . /ʾ 3"Dʾ &CD#G 3I/Dʾ .ʾ 3"Dʾ IOEʾ 3 ʾ ODʾ EEIDGʾ I#GD/ʾ 3"Dʾ E2 Gʾ 72E3 /DH 3DGʾ H3ʾ . /ʾ 3"Dʾ +I/C EDEʾ 2. /DE2 G!ʾ 2#Gʾ 3"Dʾ E2 Gʾ 2/ #Eʾ 2/Dʾ 3"D/DO6ʾ G /DH3DGʾ 3 ʾ EEIDʾ +/DHDC3Eʾ 3 ʾ 3"Dʾ B # E3D/Eʾ .. H 23 #4ʾ 23ʾ EIH"ʾ +72HDEʾ .ʾ @ /^ E" Cʾ . /ʾ 3"Dʾ +26 0 D#3ʾ .ʾ 3"Dʾ 3 CD#GEʾ 3"D/DO6ʾ G /DH3DGʾ 3 ʾ ODʾ C2 G!ʾ 2#Gʾ 3"Dʾ ##ʾ Z"D#ʾ GIDʾ Eʾ G /DH3DGʾ 3 ʾ ODʾ C2 Gʾ #ʾ 3"Dʾ B 2##D/ʾ C/D ʾ ʾ EH/ ODGʾ O6ʾ 3"Dʾ E2 Gʾ /DH 3DGʾ H3ʾ . /ʾ 2I4 0 D#3 #4ʾ +2/ H" 27ʾ 3 CD#GEʾ W #Gʾ Z"D/D2Eʾ 3"Dʾ E2 Gʾ 2/ #Eʾ .ʾ 3"Dʾ (I/3ʾ .ʾ &H"D\IDʾ/ʾ #ʾ ʾ "2FDʾ ODD#ʾ "D/D3 . /Dʾ #ʾ IED!ʾ I#GD/ʾ /ʾ O6ʾ F /3IDʾ .ʾ@/ 3Eʾ .ʾ+/ F6ʾ D27! = 627ʾ @2//2#3E!ʾ (IE3 O!ʾ E24D!ʾ /ʾ 3"D/Z ED!ʾ 3 ʾ EEIDʾ +/DHDC3Eʾ . /ʾ 3"Dʾ IOEʾ 2CC7 H2O7Dʾ 3 ʾ 3"Dʾ +26 0 D#3ʾ .ʾ 3"Dʾ ("2/4DEʾ .ʾ 3"Dʾ (I/3Eʾ .
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(/ 0 #2' +/ EDHI3 #E!' 2#G' 3"D/Z ED' #' /D723 #' 3 ' 3"D' /DHD F #4!'
/GD/ #4!' EEI #4!' 2#G' G0 # E3/23 #' .' + IO7 H' B # DE' .' 3 ' 4/2#3'
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B 25DE36' ? #4' ' MM ' A I/3"!' #3 3I7DG' % ' % ' '
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' ' + " ' I ' ' (' ' *' ' = ' ' . ? < ' '
H 372#G' W #G' Z"D/D2E' 2# 3"D/' H3' Z2E' C2EEDG' #' 3"D' DH #G' 2#G'
" /G' - D2/' .' 3"D' = D 4#' .' > E' E2 G' B 25DE36' ? #4' 3"D' A I/3"!
/Z E Q #3 3I7DG' % ' ' " # ' ' ' . ? (' ' % ' ' '
= (' ' . ? ' ' ' H 372#GN' 2#G' 2# 3"D/' H3' Z2E'
C2EEDG' #' 3"D' E2 G' DH #G' 2#G' " /G' - D2/' .' 3"D' = D 4#' .' > E' E2 G'
' ' ' @' ' B 25DE36' ? #4' 3"D' A I/3"!' #3 3I7DG%#% (<' ' N '
/ 9 *' ' ' ' ' = (' ' H 372#G' ' " '
' ' - (' ' ' = ((' ' ' ') # 0'
#G' Z"D/D2E' 3' E' D&CDG D#3' 3"23' 27' 3"D' + ZD/E!' I3" / 3 DE!' 2#G'
* I3 DE' "D/D3 . /D' D&D/H EDG' /' CD/. /0DG' O6' 3"D' E2 G' 2/ #E' .' 3"D'
(I/3' .' &H"D\ID/' #' #' /D723 #' 3 ' 2#G' H #HD/# #4' 3"D
0 2#24 #4!' /GD/ #4!' C26 #4!' EEI #4!' /' 2G 0 # E3D/ #4' 2#6' .' 3"D'
B # DE' .' /' OD7 #4 #4' /' #GDO3DG' 3 ' 3"D' (/ Z#' #' ' 3"D/'
3"2#' 3"D' * I3 DE' /' = DFD#IDE' .' (IE3 OE' 2#G' &H ED!' #E .2/' 2E' 3"D'
E2 0 D' /' 2#6' +2/3' 3"D/D .' 2/D' O6' 3"D' E2 G' /DH 3DG' H3E' #' 3"23' D"27.'
CI3' I#GD/' 3"D' B 2#24D 0 D#3' 2#G' * EC E27' .' 3"D' 2/G' C.' (IE3 OE'
2#G' &H ED' .' 3"D' # 3DG' ? #4G 0 !' 2#G' 3"D' E2 G' (/ Z#' = DFD#IDE'
' ' .2/' 2E' 3"D' E2 0 D' 2/D' O6' 3"D' E2 G' /DH 3DG' H3' #' 3"23'
D 27.' CI3' I#GD/' 3"D' (/ /23EE #D/E' .' > E' B E4DE36aE' @ GE!' A /DE3E!'
2#G' = DFD#IDE!' @ /]E!!' 2#G' I 7G #4E!' E" I7G' OD' FDE3DG' #' 3"D' /GE'
(0 0 EE #D/E' .' > E' B 25DE36 E' /D2EI/6' #' 3"D' B 2##D/' 2#G' 3 ' 3"D'
..DH3' "D/D # 2.3D/' 0 D#3 #DGN' 2#G' 3"23' 277' 3"D' + ZD/E' 2#G' * I3 DE' .'
3"D' E2 G' 2/C#E' M# 3' OD #4' , IG H 27' + ZD/E' 2#G' * I3 DEP' #' /D723 #' 3 '
3"D' EEDEE 0 D#3!' (77DH3 #!' B 2#24D 0 D#3!' /' CC/ C/ 23 #' .' 3"D'
2#GW 2&' /' 2#6' .' 3"D' EEDEEDG' 2&DE!' 2#G' 3"D' = D4I723 #' /' +26^
0 D#3' .' 2#6' .' 3"D' ' .. HD/E' /' 3"D/' +D/E #E' 3"D/DZ 3"' H ##DH3DG!'
2#G' 3"D' 32] #4' 3"D' DHI / 36' 3 ' OD' 4 FD#' O6' EIH"' ' .. HD/E' 2#G' +D/E% #E!'
D" I7G' OD' 3/2#E.D//DG' 3 ' 2#G' H #.D//DG' IC #' 3"D' (0 0 EE .7D/E' . /'
' U 3"D

' ")&' 88$,+'#8' $9&+'8#,' ")&' %&'@& 2.] &' '" ")&,&8#,&'&'$!"&('@?
,##+'" 9&& &8'"' $>&+"?6' @?' $'(' * ")' ")&' (4 !&' $'('
#'+&''" #8'")&' #,(+' 2 , "1$-' $'(' &%2#,$-6' $'(' #%%#'+6' ''
") +' &+&''" 5$,- $%&''" $++&%@-&(6' $'('@?' ")&' 1")#, "?' #8' ")&'
+$%&')$'" 8,#%' $'(' $8"&,' ")&' 2$++ '.'#8' ") +' !"7$--' ")&' 5#*&,+'
$'(' 1"@#, "7' $'" 2,&+&''" &9&,! +&(' #,' &9&,! +&$@-&' @?' ")&' +$ ('
$,#'+' #8' ")&' #1,'" #8' 9!)&C1&,' '' '$'(' $--' ")&' 31" &+'
2&,8#,%&(' @?' ")&' +$ (' $,#'+6' & ")&,' '' ++1 '.' 5,&!&2"+' #,' 3 ,&!N
"#'+' "#' ")&' #--&!"#,+' #8' ")&' 1+"#%+' #,' $+) &,' #,' 9! +&6' #,'
$'?'#")&,' 88 !&,' #,' 88 !&,+' '' ")&' #--&!"#'' #,' &!& 2'" #8' $'?'
#8'K")&' R_1" &+' #,' &4&'1&+' #8' 1+"#%+' #,' 9! +&6' #,' ,#*''
&4&'1&+6' #,' #8' ")&' $'(' $ '#,' ++&++&(' $9&+6' #,' #")&,' 51@- !'
#' &+6' "#' 2$?' +1!)' &4&'1&+6' 31" &+6' #,' #' &+' & ")&,' "#' ")&'
&!& 4&,'H&'&,$-'8#,' '#,'#")&,' 88 !&,'#,'5&,+#'' *)$"+#&4&,6'
8#,' ")&'51@- !' &,4 !&6'#,' $'?'#")&,'51,2#+&' *)$"+#&4&,' #,' '' ,&-$N
"#'' "#' ")&' $+!&,"$ ' "".6' #,(&, '.6' ++1 '.6' $--#* '.6' #,' 2$? '.' $'?'
1%' #,' 1%+' #8' #'&?' $22- !$@-&' $'(' 2$ (' "#*$,(+' ")&')$,.&+'
jM' ")&' #1,"+' #8' $*6' /' #")&,')$,.&+' '#'' ,&-$" '.' "#' ")&' +$ ('
#1,"+6' #,' "#' $'?' &&+' $'(' $-$, &+' 2$?$@-&' #1'' #8' ")&' 4 -' +"$@N
-+)%&''#8' J *'>' "#' ")&' $+!&,"$ ' '.6' #,(&, '.' ++1 '.6' $--#* '.6'
#,'2$? '.'$'?' 1%' #,' 1%+' #8' #'&?' 2$?$@-&' @?' *$?' #8' #%2&'+$N
"#'' #,'+12&,$''1$" #'' --#*$'!&' #,' ,&" , '.' $-$,?' "#' $'?' R1(.&6'
88 !&,6' %A ""@&,'5&,+#'' *)$"+#&4&,' !#''&!"&(' * ")' $'?'#8'")&'H2',"+'
#8' $*'#,' C1 "?' '' '#,'#8' #,' !#''&!"&(' * ")' ")&' H&'&,$-'
&. +"&,' #1+&'#,'J7&,' +"$@- +),#&$'" '' -' #,' '',&-$" #''"#'
")&' $+!&,"$ ' '.6' #,(&, '.6' ++1 '.6' $--#* '.6' #,'2$? '.'$'?' 1%' #,'
1%+'#8' #'&?' "#*$,(+' ")&' 5$?%&''" #8' ")&' 92&'!&+' #8' ")&' ,&!N
"#'6' &2$,6' #,' $ '"&'$'!&' #8'$'?' 51@- !' E#,:6' 1 -('.6' V'(&,N
"$: '.'#,' +"$@- +)%&''>' #,' "#' ")&' &!1, " &+' "#' @&' "$:&''8#,'$'?' 1%'
#,' $%+' #8' #'7'+#' 2$ ('#,' $--#*&(6' #,'"#' ")&' &2$?%&''" #8' +1!)'
1%' #,' 1%+6' ,' ")&' 5$?%&''" #8' ")&' '"&,&+'" (1&' #,' "#' @&!#%&' (1&'
")&,&#' ' #,' '',&-$" #)' "#' ")&' ++1 '.'#,'2$? '.' $'?' "2&'(' #,' "N
2&'(+6' #,' '' #,' 4$!$''" "2&'(+6' "#' $'?' #8' ")&' 5$,#!) $-'
' +"&,+' #8' ")&')1,!)'#8' #,' #")&,+' &'' "-&(' ")&,&"#6' #,' "#
")&' ' +"&,+' #8' ")&')1,!)&+' &,&!"&(' 1'(&,' ")&' +$ (' ,&! "&(' !'" #8'
")&' 8")' &$,'#8' ")&' & .'' #8' +' $>&+"?'D '.' '")&' #1,")6' ''
")$'" &)$-86' #,'#")&,+' &'' "-&(' ")&,&"#' #,' '',&-$" #'' "#' ")&' 5$?%&''"
#8' $'?')&, 8"-#?')&, 88' 1@+" "1"&' '' '#,' $'?' #'&?' "#' @&'
2$ ('"#'#,'1'(&,' ")&' 3 ,&!" %'&,' 12&, '"&'(&'!&'#8' $'?')&, 8>8#,'
")&'21@- !' &,4 !&6'#,'"#'#,'8#,' ")&' ,#*'' .&''#,'$'?'#")&,' 88 !&,'
#,'5&,+#''6'8#,' ")&' (&8,$? 7' ")&' 92&'!&+' #8' , % '$-'5,#+&!1" #'+' ''
''#,'#")&,* Y&' "#*$,(+' ")&' ,&!&4 '.' ,(&, '.6' ++1 '.6' #,'
2$? '.' $'?' +1!)' 31" &+6' &4&'1&+6' #,' 51@- !' #' &+6' $'(' $--' ")&'
% ' +"&, $-' 5#*&,+' $'(' 31" &+' !#''&!"&(' * ")' +1!)' 5$?%&''" $'('
(% ' +",$" #'6' #,' '',&-$" #'' "#' ")&' .,$'" '.' $!:+' #8' & '(+6' #,' "#'
")&' 72 (''%.' "#' 1,+$, &+' '' ")&' H 8'" #8' ")&' ,#*'' $'(' $-+#' $--'
")&' 2#*&,+' $'(' 31" &+' #8' ")&' $,#'+' #8' ")&' +$ (' #1,'" #8' 9!)&C1&,6'
'' ,&.$,(' "#' 2$++ '.' ")&')&, 88+' !!#1''"+' #,'#")&,' !!#1''"+6' $'('
"$: '.' &!1, " &+6' $'(' ,&!&4 '.' #'(+6' X&9!&2" '.' &!#.' L$'!&+'
$'(' #")&,' &!1, " &+6' $'(' ")&' $")+' "$:&'' '' ")&' 3 +!)$,.&' #8' ")&'
R1(! $-' 31" &+' #8' ")&' +$ (' $,#'+6[+)$--' 8,#%' $'(' $8"&,' ")&' 2$++ '.
#8' ") +' !'" !&$+&' $'(' (&"&,% '&'>' $'(' $--' +1!)' 5#*&,+6' 1")#, " &+'
$'(' 31" &+' +)$--' @&' ",$'+8&,,&(' "#6' !#''8&,,&(' 12#'6' $'(' 4&+"&(' '' ")&'

V $ B ' ' (2C7

#,(' .)' ,&$+1,&,' #8' ")&' V' "&(' D '.(#%' #8' '('
! ' ")&' #"" % ++ #'&,+' #8' +' $>&+"?;+' ,&$+" ,?' #8' ")&' V' "&(7
D '.(#%6 8#,' ")&' %&' @& '.' $'?' !" #,' !"+')8' 5$,- $%&'"6' #8'
$'?' E," #8' 5, 4?' &$-6' #,' #?$-' E$,,$'"6' #,' $*6' V+$.&6' 1+"#%6'
#,' 1")#, "?6' "#' "C&' !#'",$,?' '' $'?* +&' '#"* ")+"$'('.A

("33 EK' E 3 D/E' C.'3"D' /D2E#36' 213" / dDG' M ' /D41723D3"D' + ZD/E' E G' * I3 DE .' 3"D' ' .. HDE' .'? #4aE' >D#5D# O/2# ' !&,' Z!

' J '(' @&' "' &'$!"&(')$"' "7+)$--' @&' -$*81-' "#' ")&' +$ (' #%A'
% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,?6' #,' $'?'),&&' #8' ")&%6' $'('
")&?' $,&')&,&@?' $1")#, L&(' $'(' &%2#*&,&(6' @?' E$,,$'"' "#' @&' %$(&'
$'(' , .'&(' @?' ")&%' 8,#%' %&' "#' %&6' "#' ,&.1-$"&' $--' #,' $'?' #8'
")&' 31" &+' #8' ")&' 88 !&+' #8' D '.;+' &%&%@,$'!&,' '' ' #,('
,&$+1,&,;+' &%&%@,$'!&,' '' ' 1("#,' #8' 9&)&"2,&,' '6'
'$'(' &!& 4&,' H&'&,$-' #8' '$'(' "#' !#'+#- ($"&6' ",$'+N
8&,6' #,' ,&.1-$"&' ")&' 31" &+' #8' ")&' +$ (' 88 !&+6' $'(' $-+#' "#' (,&!"' ")&'
V9&,! +&' $'(' 5&,8#,%$'!&' #8' $--' #,' $'?' 8' ")&' 5#*&,+' $'(' 31" &+'
)&,&' '@&8#,&' &'1%&,$"&(' $+')&,&"#8#,&' &9&,! +&(' $'(' 2&,8#,%&('
@?' ")&' +$ (' $,#'+' #8' 9!)&C1&,' '' ' '' +1!)' $''&,' $'('
1'(&,' +1!)' &.1-$"#'+' $'(' #'("#'+' $+' ")&' +$ (' #%% ++ #'&,+'
28' +' $>&+"?;+' ,&$+1,?' +)$--' ") ' :' 8 "' $'?' !" #,' !"+' #8' 5$,- $,'
%&'"6' #,' $'?' $*6' V+$.&6' 1+"#%6' #,' 1")#, "?6' "#' ")&' !#'",%?'
'#"* ")+"$'('.

(O2E' E #D/D' '3]E' /D2E I/6026' H2T7 C #3"D' 2/ #E' 3' D&DH I3D' (#^ FD62#HD' .' +/ CD/36' FDE3DG' #' 3OD #' O6' 2#6' .'3"D' /DH 3DG' H3E

' '(' @&' 8' &'$!"&(')$"' "+)$--' @&' -$*81-' 8#,' ")&' +$ (' &%% +B'
, #)&,+' 8' +' $>&+"?;+' ,&$+1,?' 8#,' ")&' %&' @& '.6' #,' $'?'),&&'
#8' ")&%6' "#' !$--' 12#'' $'(' (,&!"' ")&' +$ (' $,#'+' #8' +' $>&+"?;+'
#1," #8' 7(&C1&,' '' ' @?' $'?' '1"&' "#' @&' ++1&(' @?' ")&'
$ (' #%% ++ #'&,+' #8' Y' 7&+"?;+' ,&$+1,?6' "#' .,$'"6' &9&!1"&6'
$'(' (&- 4&,' $'?' 3 +2#, "#'6' ++ .'$" #'6' #'4&?$'!&6' #,' #")&,' 3&&('
*)$"&4&,' *) !)' %$?' @&' '&!&++$,?' 8#,' (4&+" '.' ")&' +$ (' $,#'+' #8'
9!)&C1&,' #8' $--' 5,#2&,"?6' &, "$@-&' $'(' #4&$@-&7 4&+"&(' '' ")&%'
@?' #,' 1'(&,' $'?' !" #,' !"+')&,& '' ,&! "&(' #,' ,&8&,,&(' "#6' #,' #8@&,B'
A* +&6' %#' $-,&$(?' ",$'+8&,,&(' #,' $1")#, L&(' "#' @&' ",$'+8&,,&(' #,'
$88&!"&(' @?' ")&' +$ ('-$+"B,&! "&(' !" #8' ")&' &!#'($'(') ,(' &$,' #8'
")&' & .'' #8' +' 2,&+&'' $>&+"?6' $'(' *) !)' ")&?')#-(' &")&,' ''
5,#2&,"?' #,' '+&!1, "?6' 8#,' #,' '' $%&' $'(' &)$-8' #8' +' $>&+"?6' #,'
#8' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,?6' #,' #")&, * +&' 8#,' #,'
'' @&)$-8' #8' ")&' 51@- !6' "#' $'(' '' 8$4#1,' #8' $'?' 5&,+#'' #,' 5&,+#'+' "#'
@&' '#% '$"&(' $'(' $22# '"&(' @?' ")&' +$ (' #%% +, #'&,+' #8' +' $N
>&+"?;+' ,&$+1,?' 8#?' ")$"' 88&!" ' $'(' "+)$--' @&' -$*81-' "#' ")&' +$ ('
$,#'+' #8' 9!)&C1&,6' $'(' ")&?' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(6'
12#'' +1!)' &C1 + "#'' @?' ")&' +$ (' #%% ++ #'&,+' #8' +' $>&+"?;+'
,&$+1,?6' "#' .,$'"6' &9&!1"&6' $'(' (&- 4&,' $--' +1!)' 3 +2#+ "#'+6'
++ .'$" #'+6' #'4&?$'!&+6' #,' #")&,' 3&&(+' *)$"+#&4&,' $+' +)$--' @&'
'&!&++$,?' "#' (4&+"' ")&%' #8' $'?' +1!)' &, "$@-&' #,' 5&,+#'$-' 5,#2&,"?'
)&-(' @?' ")&%' $+' $8#,&+$ (6' "#' $'(' '' 8$4#1,' #8' $'?' 2&,+#'' 2,' 5&,+#'+'
"#' @&' '#% '$"&(' $'(' $22# '"&(' @?' ")&' +$ (' #%% ++ #'&,+' #8' +'
%&+"?;+' ,&$+1,?' $+' $8#,&+$ (' 8#,' ")&' (# "8.' *)&,&#8' ") +' !)'
$""$' 1!)' '1"&' @?' ")&' +$ (' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$N
+1,?6' +)$--' @&' 81--' E$,,$'"' $'(' 9#'&,$" #'' "#' ")&' +$ (' $,#'+' #8'
9!)&C1&,

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(-&!"#" *($'$.&B' `_&$"#8 +B'

< ' '(' @&' "' &'$!"&(')$"' 8,#%' $'(' $8"&,' ")&' 2$+, '.' #8' ") +'
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M= 3.&'$& " $'(' #--&!" #'' #8' ")&' ++&++&(' $9&+' $'(' $'(' $9' EDEEDG' 2&DE'
8' ' +)$--')&' 1'(&,' ")&' $'$.&%&'' $'(' 3 ,&!" #'' #8' ")&' 2#G'
+$ (' #%' ++ #'&,+' @,' ")&' 88$,+' #8' $9&+' 8#,' ")&' %&' @& '.' '
$'(' "+)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' #,(&,' $" (' (,&!"6' H O O EE #'
'' 8&-$" #'' "#' "R &' _ 4 + #' ' ' V' #'6' #,' 7 $'.&'>&'' #8' ")&' +&4& $-' D/E' a /3"D'
#1'" &+6' "&*$,", &+6' " &+6' 1,.)+6' $'(' 3 +", !"+' '' ' 8#,' .7 2 /E' .'
")&' 51,2#+&' #8' ")&' #--&!" #'' #8' ")&' +$ (' ++&++&(' $9&+' $'(' $'('
$96' ,&+2&!" 4&-?6' $'(' ")&' +1,4&? '.6' $++&++ '.6' -&4? '.6' $'(' !#-N
-&!" '.' ")&' +$%&6' "#' +&""- '.' ")&' !!#1'"+' #8' #--&!"#,+6' $'(' "#' $--'
'&+6' 5&'$-" &+6' $'(' #,8& "1,&+6' $'(' "#' #%2#+ " #'+' $'(' --#*B'
' $'!&+' "#' '8#,%&,+6' (1&' #,' 2$?$@-&' #,' $, + '.' '' ,&-$" #'' ")&,&"#6'
$'(' '' $--' #")&,' $""&,+' !#'"7,$ '.' ")&' +$%&6' '' +1!)' $''&,' $'('
"#' "- &' +$%&' 88&!" $+' ")&' +$ (' $,#'+' #8' ")&' #1," #8' 9!)&C1&,'
% .)")$4&' #,(&,&(' $1(' (,&!"&(' #,' $--#*&(' $'(' ")&' +&4&,$-'
#--&!"#,+' $'(' #")&,' 5&,+#'+' '#*' &%2-#?&(' #,')&,&$8"&,' "#' @&'
&%2-#?&(' 1'(&,' $'(' '' ")&' 9&!1" #'' #8' ")&' +$ (' ,&! "&(' !"+6' ''
,&-$" #'' "#' ")&' +$ (' $9&+6' +)$--' @&' +1@>&!" "#' ")&' ,(&,6' #'",#1-6'
$'(' 3 ,&!" #'+' #8' ")&' +$ (' #%% ++ #'&,+' 8#" ")&' 88$,+' #8' $9&+6'
'' $--' ") '.+' ,&-$" '.' ")&,&"#6' '' ")&' +$%&' $''&,' $+' @?' ")&' +$ ('
,&! "&(' !"+' #,' $'?' #8' ")&%' ")&?' *&,&')&,&"#8#,&' 1'(&,' ")&' +$ ('
$,#'+' #8' 9!)&C1&,' M P

6' ?' '(' @&' '' &'$!"&(6')$" '' +)$--' @&' B-$*81-' 8#,' ")&' +$ (' (O O EE #'
#%% ++ #'&,+' 8#,' ")&' 88$,+' #8' $9&+6' #,' 8#,' "@&' #%2",@E&,' #8' 8'$:+
$9&+' '' '#,' $'?#")&,' 5&,+#''"#' @&' $1")#, L&(' $1(' $22# '"&(' #,(*7 ,#!&+
@?' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' 88$,+' #8' $9&+6' "#' #,(&,' +1!)' "#' EEID'. /'
5,#!&++' "#' ++1&' $.$ '+" $'?' 5&,+#'' *)#' +)$--' @&' '' $,,&$,' '' ")&' //D2/E' #8'
2$?%&'" #8' ")&' $9&+' (1&' @?') %' #,')&,6' #,' $.$ '+" $'?' #--&!"#,' #,' A7AW8
#")&,' 88 !&,' *)#' +)$--' @&' '' $,,&$,' '' ")&' $!!#1'" '.' 8#,' #,' 2$? '.'
$'?' 1,$ #,' 1%+' !#--&!"&(' @?' ")&%' ,&+2&!" 4&-?6' #,' @&' #")&,* +&'
'' (&8$1-"6' #,'$.$ '+" ")&' 1,&"?' #,' 1,&" &+' #8' +1!)' #--&!"#,' #,' #")&,'
88 !&,6' '' +1!)' $'(' ")&' - :&' $''&,' $'(' "#' ")&' +$%&' 88&!" $+' @?' ")&'
+$ (' "&& "&(' 7"+' '' ,&-$" #'' "#' ")&' +$ (' ++&++&(' $9&+' $'(' $'('
$9' +' $1")#, L&(' $'('(,&!"&(' "#' ++1&' 8#,' ")&' &!#4&,?' #8' $'?' 1%6'
,,&$,+6' #,' 3&8$1-" (1&' #,' !#%% ""&(' 1'(&,' ")&' +$ (' ,&! "&(' !"+' #,'
$'?' #8' ")&%

' 5,#4 (&(' $-*(?+6' $'(' @&' " &'$!"&(')$" ")&' +$ (' #%,$ +B' (O O EE #^
+ C'&,+' 8#,' ")&' 88$,+' #8' $9&+' +)$--' '' $--' ") '.+' ,&-$" '.' "#' ")&' D/E' . /' ..2 /E'
9&!1" #'' #8' ")&' 3 1"?' #8' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !" @&' .' 2&DE' 3 '
+1@>&!" "#' ")&' 1")#, "?6' 3 ,&!" #'6' $'(' #'",#1-' #8' ")&' +$ (' #,(' OD'E I O5DH3' 3 '
.)' ,&$+1,&,' $'(' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,?6' $'(' 3"D' (#3/ I7
+) (-' #@&?' $--' +1!)' ,(&,+' $'(' '+",1!" #'+' $+' +)$--')$4&' @&&'' #,' +)$--' .'3"D' (O^
$8"&,' ")&' 2$++ '.' #8' ") +' !" 8,#%' %&' "#' %&' @&' ++1&(' "#' ")&' +$ (' O EE #D/E' .'
#%% ++ #'&,+' '' ")$" &)$-8' @?' ")&' #,(' .)' ,&$+1,&,' #,' $'?' > E' B 25DE36aE'
),&&' #,' %#,&' #8' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,? /D2E I /6

< ' '(' @&' " &'$!"&(')$" $--' #%% ++ #'+6' 3&21"$" #'+>' $'(' & E3 #4' C'
22# '"%&"""+' .,$'"&("#' $'?' 88 !&,+' $!" '.' 1'(&,' ")&' +$ (' ,&! "&(' C #3 O D#3E'
!"+' ,&-$" '.' "#' ")&' ++&++&(' $9&+' #,' ")&' $'(' $9' '' ' $"
$'?' %&' @&8#,&' ")&' 2$++ '.' #8' ") +' !"6' $'(' '' 8#,!&' $" ")&' 2$++ '.'
#8' ") +' !"6' +)$--' ,&%$ '' '' 81--' #,!&' $'(' 88&!" 1'" -' ")&' +$%&' +)$--'
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&.1-$" #'+6 5&'$-" &+6 $'(#,8& "1,&+ ,&-$" ' .A"# ")& $""&,+ $'(
31" &+ "# *) &8 ")&? +)$--)$4& @&&' $22# '"&($'($-- #'(+ *) !)
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1,&" &+ ,&+2&!" 4&-?6 $'($- #4&'$'"+6 3&&(+6 $'('.$.&%&'"+
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773"D/DH 3DG H3E 3 /D^ O2 # # . /HD! D&HDC3 #4 # E .2/ 2E 3"D6 2/D "D/DO6 273D/DG /

< 5,#4 (&($-*$?+6 $'(@& "&'$!"&(6)$" '#") ' . ' ") + !"
!#'"$ '&(+)$-- &9"&'(#, @& !#'+",1&("# &9"&'("# ,&2&$- #, $-"&,
$'? !" #, !"+6 #, $'? 5$, #8$'? !" #, !"+6 ' 8#,!& ,&-$" ' . #,
)$4 ' . &8&, '!& "# ")& +$ (++&++&($9&+ $'($'($9 '
*($" ")& 2$++ ' . #8") + !"6 #, $'? #") &, !" #, !"+ @? ") + !"
,&8&,,&("# #, $88&!"&(6 &9!&2" ' . ' +# 8$, $+ +1!) !" #, !"+ + #,
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,2G H 27 + ZD/E .

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9!)&C1&,6 $!!#,(' . "# ")& 5,$!" !& #8")& +$ (#1,"6 +)$-- !#'" '1&
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U "#8#,&> $'?") ' . ' 88 + !" "# ")& !#'",$,? '#"* ")+"$'(' .

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3"Dˢ BDG I Oˢ .ˢ 2F #4Eˢ 2#]Eˢ5 2#Gˢ 3 ˢ 2OD#Gˢ 2#
H3ˢ .ˢ 3"Dˢ) #3"ˢ -D2/ˢ .ˢ > Eˢ 723Dˢ B25DE36!ˢ 3 ˢ
H #E 7 G23Dˢ 2#Gˢ 2OD#Gˢ 3"Dˢ 2ZEˢ /D723 #4ˢ 3 ˢ
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E ˢ $Oˢ !"ˢ *$+ˢ 2$++&(ˢ `ˢ ")&ˢ '")ˢ &$,ˢ #8ˢ ")&ˢ
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#1"ˢ ")&,ˢ 1'(+ˢ 'ˢ ")&ˢ 51,!)$+&ˢ #8ˢ ,'%&($"&ˢ #,ˢ (&8&,,&(ˢ 8&ˢ
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&,,$ˢ #8ˢ &$,+6ˢ $'(ˢ ")$"ˢ 5,#4 + #'+ˢ +)#1-(ˢ @&ˢ %$(&ˢ 8#,ˢ !$,,? ' .ˢ
")&ˢ +$ (ˢ &$+1,&+ˢ '"#ˢ &88&!"ˢ $+ˢ @&,& 'B$8"&,ˢ &92,&++&(ˢ ˢ @&ˢ "ˢ ")&,&N
8#,&ˢ &'$!"&(ˢ @?ˢ ")&ˢ D ' .;+ˢ %#+"ˢ 9!&--&'"ˢ $>&+"?6ˢ ?ˢ $'(ˢ * ")ˢ
")&ˢ (4 !&ˢ $'(ˢ #'+&'"ˢ #8ˢ ")&ˢ #,(+ˢ 2 , "1$-ˢ $'(ˢ &%2#,$-6ˢ $'(ˢ
#%%#'+6ˢ 'ˢ ") +ˢ2,&+&'"ˢ 5$,- $%&'"ˢ $++&%@-&(6ˢ $'(ˢ @?ˢ ")&ˢ 1")#, "?ˢ
#8ˢ ")&ˢ +$%&ˢ)$"ˢ 8,#%ˢ $'(ˢ $8"&,ˢ ")&ˢ *&'" &")ˢ 3$?ˢ #8ˢ 'ˢ ")&ˢ / I E3DDEˢ
&$,ˢ #8ˢ #1,ˢ #,(ˢ '&ˢ ")#1+$'(ˢ & .)"ˢ)1'(,&(ˢ $'(ˢ ") ,"?B"),&&6ˢ .ˢ 2F #4Eˢ
#,ˢ $+ˢ +##'ˢ $8"&,ˢ $+ˢ ")&ˢ #%% ++ #'&,+ˢ 8#,ˢ ")&ˢ &(1!" #'ˢ #8ˢ ")&ˢ =2ˢ
$" #'$-ˢ 3&@"+)$--ˢ ") ' :ˢ 8 "6ˢ #8ˢ *) !)ˢ (1&ˢ #" !&ˢ +)$--ˢ @&ˢ . 4&'ˢ 'ˢ #D% </ Oˢ *Dˢ
")&ˢ ˢ K ˢ "ˢ +)$--ˢ $'(ˢ %$?ˢ @&ˢ -$*81-ˢ 8#,ˢ $'?ˢ *#ˢ ,1+"&&+ˢ C E 3 /E!ˢ Hˢ
#,ˢ $'$.&,+ˢ #8ˢ $ˢ $4 ' .+ˢ $' :ˢ -&.$--?ˢ &+"$@- +)&(ˢ "#ˢ ,&!& 4&ˢ 8,#%ˢ . /ˢ + I /H"2EDˢ
$'?ˢ 3&2#+ "#,ˢ 'ˢ ")&ˢ +$ (ˢ $4 ' .+ˢ $' :6ˢ #,ˢ #")&,ˢ 5&,+#'ˢ *)#%ˢ ")&ˢ ##I 3 DE!ˢ
+$ (ˢ ,1+"&&+ˢ #,ˢ $'$.&,+ˢ +)$--ˢ ") ' :ˢ &'" "-&(ˢ "#ˢ @&!#%&ˢ $ˢ 3&2#+ "#,ˢ
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'' $' $4 ' . +' $' : 6' $' ' ?' 1%' ' 1%+' #8' #' '&?' 8#,' ")&' 51,!)$+&' # '
%%&($"&' #,' (&8&,,&(' 8&' ''1 " &+6' #,' #8' %%&($"&' #,' " &8&,,&" B7'
''1 " &+' 8#,' $' !&,"$ '' - % "&(' &,%' #8' &$,+ ' +1!)' ''1 " &+' "#'
@&' !#'",$!"&(' 8#,' @?' $'?' *#' #8' ")&' +$ (' ,1+"&&+' #,' $'$.&,+' #''
@&)$-8' #8' ")&' @%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"6'
$'(' "#' @&' !)$,.&(;$'(' !)$,.&$@-&6' $'(' ")&' +$ (' ''1 " &+' $,&')&,&@?'
%$(&' !@$,.&$@-&+' 12#'' ")&' #'+#- ($"&(' 1'(' #8")&V' "&7' D #.(#%6'
1'(&,' ")&' % "$" #'+6' &+", !" #'+6' $'(' &.1-$" #'+')&,&$8"&,' &9'
2,&++&(' $'(' $--' 1%+' #8' #'&?' 8,#%' %&' "#' %&' 2$ (' "#' ")&' +$ ('
,1+"&&+' #,' $'$.&,+' #'' $!!#1''' #8' ")&' 51,!)$+&' #8' &4&,?' +1!)'
''1 "?' +)$--' @&' :&2" +&2$,$"&6' (+" '!"6' $'(' 2,'' 8,#%' ")&' #")&,'
1'(+' #8' "- &' '+" "1" #'6' $'(' @&' 8,#%' %&' "#' %&6' *)&'' ,&!& 4&(6'
2$ (' '"#' ")&' $':' #8' . "#' ")&' #&#1''' #8' ")&(#,$% ++ #'&,+'
8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"' $'(' ")&' $+) &,+' #8' ")&'
$':' #8' . $,&')&,&@?' ,&!>h1 ,&(' "#' ,&!& 4&' $-' +1!)' #' &+6'
$'(' "#' 2-$!&' ")&' +$%&' "#' ")&' !!#1''' #8' ")&' +$ (' #'$% ++ #'&,+6' "#'
@&' &'" "-&(')&' 1'(' 8#,' 21,!)$+ '.' 8&' ''1 " &+6' #,' ''1 " &+'
8#,' &,%+' #8' &$,+6' l ' ' * ' 7&6[#'' ")&' !!#1''' #8' $4 '.+'
$':+' $'(' 5$,#!) $-' #! &" &+ ^' $'(' ")&' +$ (' #%% ++ #'&,+' +->$--'
'' - :&' $''&,' :&&2' (+" '!'' $'(' +&2$,$"&' !!#1''+' #8' $--' #' &+' +#'
2-$!"&(' "#' ")&' +$ (' !!#1''+6' 21,+1$'' "#' ")&' 5,#4 + #'+' 28' ") +' !"

##I 33DE' 3 ' OD' H #3/2H3DG' 3 ' O6' Z ' /I E3DDE' * ' OD". 7.' .' B #% % +B' E #D/E'. /' =DG I H3 .3' .') 23 #27' * D O3 ' B #D6' C2 G' 3 ' /I E3DDE ' #' 2HH I #3' .' + I /H"2ED' .' ##I 36' 3 ' OD']DC3' G E3 #H3!' 2#G' C2 G' 3 ' H^ H I #3' .' (O O E^ E #D/E

' 5,#4 (&(' $-*$?+6' $'(' @&' " &'$!"&(')$" '#' +1!)' ''1 "?' #,
''1 " &+' +)$--' @&' !#'",$!"&(' 8#,' @?' ")&' +$ (' ,1+"&&+' #,' $'$.&,+'
#'' @&)$-8' #8' ")&' +$ (' #%% ++ #'&,+' 12#'' ")&' 8&' #8' $'?' #% '&&6'
1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"6' *)#' #'' ")&' 3$?' *)&'' ")&' #'N
",$!'' 8#,' +1!)' ''1 "?' #,' ''1 " &+' +)$--' @&' %$(&' +)$--' @&' 1'(&,'
")&' .&' #8' 8"&&'' &$,+' '&")&,' + ,$--' $'?' +1!-,' ''1 "?' #,'
''1 " &+' +#-(' #,' .,$'"&(' "#' #,' 2#++&++&(' @?' $8"?' '&' '(4 (1$-'
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#1,' 2#1'(+' A 5,#4 (&(' $-+#6' ")$" " +)$--' @&' -$*81-' 8#,
")&' +$ (' %+"&&+' #,' $'$.&,+6' #,' #%% ++ #'&,+6' #,' ")&' #%2",#--&,'
H&'&,$-' ,' ++ +"$'' #%2",#--&,' $!" '.' 1'(&,' ")&' +$ (' #%% +N
+ #'&,+6' "#' (&('2' #,' ,&81+&' "#' !#'",$!'' 8#,6' +&--6' #,' .,$''' $'?'
''1 "?6' 1'(&,' ")&' ,#4 + #'+' #8' ") +' !"6' '' $'?' $+&' *)&,&' ")&,&'
+)$--' @&6' '' ")&' 2 ' #'' #8' ")&' +$ (' ,1+"&&+' #,' $'$.&,+6' #,' #8' ")&'
+$ (' #%% ++ #'&,+6' #,' #8' ")&' +$ (' #%2",#--&,' H&'&,$-' #,' ++ +"$''
#%2",#--&,6' +188 ! &'' H,#1'(+' 8#,' ,&81+ '.' #,6(&!- '.' +#' "#' (#]'
5,#4 (&(' $-+#6' ")$" 8' $'?' '&' '(4 (1$-' +)$--')$4&' #,')#-(' #,' @&'
2#++&++&(' $"6$'?' '&' %&' #8' $'?' ''1 "?' #,' ''1 " &+' .,$'"&('
1'(&,' ")&' 5,#4 + #'+' #8' ") +' !" &9!&&(' '.' '' ")&' *)#-&' ")&' 1%' #8'
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##I 3 DE' # 3' 3 ' OD' 4/2#3DG' #' ")&' .D' .' 2#6') O #DD' I #GD/' A .3DD#' - D2/E' .' 4D!' # /' 3 ' D&HDDG' / /' CD/' ##I O (O O E^ E #D/E!' H' O 26' GDH7 #D' 3 ' H #3/2H3' . /' 2#6' #' I I 3F

' '(' @&' " 81,")&,' &'$!"&(')$" " +)$--' '#" @&' -$*81-' 8#,' ")&'
+$ (' 1+"&&+' #,' $'$.&,+' "#' "$:&6' (&%$'(6' #,' ,&!& 4&' 8,#%' $'?'
5&,+#'' $22-? '.' "#' &'"&,' '"#' $'?' #'",$!"6' 8#,' ")&' 51,!)$+&' #8' +1!)'
''1 "?' $+' $8#,&+$ (6' 8#,' ('$ ++ #'' &&' #,' #")&,* +&6' $' .,&$"&,'
1%' #8' #'&?' ")$'' *#') -- '.+' $'(' 92&'!&66' '#,' 8,#%' $'?'
5&,+#'' *)#' %$?')$4&' &'"%#(' '"#' $'?' +1!)' #'",$!'' $7 .,&$"&,' 1%'
$''1$--?' ")$'' ")&' 1%' #8' '&') -- '.6' *) !)' +$ (' +&4&,$-' 1%+'
")&' +$ (' ,1+"&&+' $,&')&,&@?' $1")#, L&(' $'(' &%2#* &,&(' "#' !)$,.&'
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V L B ' ' (2C 7 ' V
A K

#'&?' $, + '.' 8,#%' +1!)' &&+' $'(' 5$?%&'"+' +)$--' @&' $22- &(' "#@&2CC7 DG'
"#*$,(+' (&8,$? '.' ")&' '&!&++$,?' 92&'!&+' '!1,,&(' @?' ")&' +$ (' GD./26 #4'
,1+"&&+' #,' $'$.& +' '' !$,,? '.' '"#' &9&!1" #'' ")&' 5,#4 + #'+' #8' &'!&8#5
")+' !'' * ")' ,&+2&!" "#' ")&' !#'",$!" '.' 8#,6' .,$'" '.6' $'(' 2$? '.' ,1+"&&,'
+1!)' ''1 "&+' B

<' "(' @&' '' 81,")&,'&'$!"&(6')$'' '' +)$--' $'(' %$?' @&' -$*81-' 1-26/2D13 E'
8#,' $'?' 5&,+#'6')$4 '.' !#'",$!"&(' 8#,' ")&' 51,!)$+&' #8' $'?' +1!)' 026' OD' 02GD'
''1 "?' $+' $8#,&+$ (6' * ")' ")&' #'+&'' #8' ")&' #%% ++ #'&,+' 8#,' ")&' 2#G' ##1 3 D E'
&(1!" #'' #8' ")&' $" #'$-' 3&@"6' #,' ")&' #%2",#--&,' H&'&,$-' #,' /DHD FDG' 23'
++ +"$''' #%2",#--&,' $!" '.' 1'(&,' ")&%6' "#' %$:&' ")&' $''1$-' #,' 3"D/' 2F #4E'
#")&,' 5$?%&'"+6' #,' "#' ,&!& 4&' ")&' +$ (' ''1 "?' +#' !#'",$!"&(' 8#,' $+' 2#]E!' H'
$8#,&+$ (6' "),#1.)' ")&' $'(+' #8' ")&' ,1+"&&+' #,' $'$.&,+' #8' $'?' 3"2#' 3"23' 23'
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$'' *) !)' +1!)' 5&,+#'' #, . '$--?' &'"&,&(' '"#' +1!)' #'",$!'' $+' (#3/2H3' Z2E'
$8#,&+$ (/ 4 #2776'
D#3D/DG' #3

<' '(' @&' '' 81,")&,'&'$!"&(6')$'' 8#,' ")&' @&""&,' !$,,? '.' ") +' /D2E1/6'
!'' '"#' &9&!1" #'' '' + ,$--' $'(' %$?' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+
#8' +' $>&+"?;+' ,&$+1,?6' #,' $'?'),&&' #,' %#,&' #8' ")&%6' 8,#%' #F")!<$-$7
%&' "#' %&' $+' ")&?' +)$--' ") '.' 8 "6' "#' (,&!'' ")&' #%% ++ #'&,+' #8' ##1 3 DE
8#,' ")&' &(1!" #'' #8' ")&' $":_O$-' 3&@'' "#' 1+&' $'(' $(#2" +1!)' $@-&+' 2E' 2CC/ FD37
$+' +)$--' 8,#%' %&' "#' %&' @&B$1")#, L&(' $'(' $22,#4&(' #8' @?' ")&' @?")&%
+$ (' #%% ++ #'&,+' #8' ")&' ,&$+1,?6' #,'$'?'),&&' #,' %#,&' #8' ")&%6
8#,' $+!&,"$ ' '.' ")&' <$-1&+' #8' ''1 "&+6' *)&")&,' %%&($"&' #,
(&8&,,&(6' (&2&'('.' #'' ")&' #'" '1$'!&' #8' + '.-&' 4&+6' $'(' $-+#
+1!)' $@-&+' #8A "- j' <$-1&+' #8' ''1 "&+' 8#,' $' !&,"$ '' - % "&(' &,%
#8' &&$,+6' %%&($"&' #,' (&8&,,&(6' $+' %$?' @&' .,$'"&(' $!!#,('.' "#
",&' 5,#4 + #'+' #8' ")+' !"' $'(' +1!)' ,&+2&!" 4&' $@-&+' +)$--' @&
4$- (' $'"' &88&!"1$-' 8#,' ")&' 51,2#+&+' #8' ")+' !"' $'(' $--' ''1 "&+
8#,' 4&+' #,'<&$ 76' #8' *)$"+#&4&,' D '(6' "#' @&' 21,!)$+&(' 1'(&,' ")&
5,#4 + #'+' #8' ")+' !"6' +)$--' @&' 21,!)$+&(' $!!#,('.' "#' ")&' <$-1&+
+"$"&(' '' +1!)' $@-&+' ,&+2&!" 4&-?' +#' -#'.' $+' ")&' +$%&' +)$--' ,&%$ '
'' 8#,!&' $'(' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' #8' ")&
,&$+1,?' "#' $-"&,6' ,&4#:&6' $'(' ,&!$--' $--' #,' $'?' #8' ")&' +$ (' $@-&+
8,#%' B%&' "'' %&6' $'(' "#' (,&!'' ")&' V+&' $'(' (#2" #'' #8' +1!)
#")&,' #@ &+' '' - &1' ")&,&#8' $+' +)$--' @&' $22,#4&(' #8' @?' ")&' +$ (
#%% ++ #'&,+' #8' ")&' ,&$+1,?6' $'(' $-+#' "#' (+!#'" '1&6' @?' $'?
E$,,$''' 1'(&,' ")&' $'(+' $((,&++&(' "#' ")&' +$ (' #%% ++ #'&,+' 8#,
")&' &(1!" #'' #8' ")&' $" #'$-' 3&@'' X#8' *) !)' ")&' +$ (' -$+"B%&'" #'&(' A
#%% ++ #'&,+' +)$--' . 4&' #" !&' '' "- &' K #P' ")&' .,$'" '.
#8' $'?' ''1 "&+' 8#,' 4&+' #,' &&$,+' 1'(&,' ")&' 5,#4 + #'+' #8' ")+' !"6
8' ")&?' +)$--' ") ':' '' 8 '' $'(' &92&(&'' +#' "#' (2]' 5,#4 (&(' $-*$?+6
")$'' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-
3&@'' +-$--6' 2,&4 #1+' "#' ")&' (#2" #'' $'(' 1+ '.' #8' $'?' +1!)' $@-&+
,&+2&!" 4&-?6' . 4&' #" !&' 8,#,$ %&' "#' %&' '' ")&' K
'' +1!)' #,%' $'(' $''&,' $+' "#' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&
&(1!" #'' #8' ")&' $" #'$-' 3&@'' +)$--' +&&%' 8 '' $'(' 2,#2&,6' ")$'' +1!)
$@-&+')$4&' @&&'' $1")#, L&(' $'(' $22,#4&(' @?' ")&' +$ (' #%% ++ #'&,+
#8' ")&' ,&$+1,?

<' '(' @&' '' 81,")&,'&'$!"&(')$'' '' &4&,?' $+&' * &'' $'?' 1%' +1/H"2ED/E' .'
#8' #'&?' +)$--' @&' 2$ (' $+' ")&' #'+ (&,$" #'' 8#,' ")&' 51,!)$+&' #8' $'?' ##1 3 DE . /
''1 "?' " FDE' /'. /

$ B ' ' (2C'

K &

-D2/E E"277 % OD' D#3 37DG' 3 ' EIH"' 0 I#3' .' ##I 36' 2E E7I 77 OD' ECD^ H . DG' 3' 3"D' 2O7DE

' ' 1 "?' 8#,' 4&+' #,' &$,+6' #8' *)$"+#&4&,' D ' (6' 1 ' (&,' ")&' 5,#4 + #' +' #8' ") +' !"6' ")&' 5&,+#' ' #,' 5&,+#' +' 21,!)$+ ' .' $' ?' +1!)' ' ' 1 "?' 8#A8 4&+' #,' &$,+6' 12#' ' ")&' 5$?%&' ' #8' +1!)' 1%' #8' #' &?' "#' ")&' +$ (' ,1+"&&+' #,' $' $.&,+6' $' (' @?' ")&' +$ (' ,1+"&&+' 2$ (' ' "#' ")&' $' :' #8' . ' "#' 8)&' !!#1' ' #8' ")&' +$ (' #%% ++ #' &,+6' &' ' "-&(' \')&' 1 ' (' 8#,' 21,!)$+8' .' 8&' ' ' 1 " &+' #,' ' ' 1 " &+' 8#,' &,%+' #8' &$,+' #' ' $!!#1' ' #8' $4 ' .+' $' :+' $' (' 5$,#!) $-' #! &" &+6^' +)$--' 8#,' &4&,?' 1%' #8' #' &?' 2$ (' @&' &' ' "-&(' "#' ,&!& 4&6' (1, ' .' ")&' #' ' ' 1$' !&' #8' ")&' + ' .-&' 8&' #8' ")&' #% ' &&6' *)&")&,' +1!)' 8&' ' ' 1 "?' +)$--' @&' %%&($"&' #,' (&8&,,&(6' #,' (1, ' .' ")&' &,%' #8' &$,+6' %%&($"&' #,' (&8&,,&(6' 8#,' *) !)' $' ?' ' ' 1 "?' +)$--' @&' .,$' "&(' 1 ' (&,' ") +' !"6' $' ' ' ' 1 "?' 8#,' $' 8&' #,' 8#,' &,%+' #8' &$,+6' $+' ")&' $+&' %$?' @&6' #8' +1!)' $' ' 1$-' %#1' ' $+' +)$--' @&' +2&! 8 &(' ' $' ?' +1!)' $@-&' #,' $@-&+' ,&+2&!" 4&-?' $+' ")&' #%% ++ #' &,+' #8' +' $>&+"?;+' ,&$+1,?6' #,' $' ?'),&&' #,' %#,&' #8' ")&%6' +)$--' 8,#%' %&' "#' %&' $1")#, L&' $' (' $22,#4&6' ' %$' ' &,')&,& 'B@&8#,&' (,&!"&(6' "#' @&' !$-!1-$"&(' $' (' $+!&,"$ '&(' $!!#,(' .' "#' ")&' .&' #8' ")&' #% ' &&6' #,' ")&' #' ' ' 1$' !&' #8' ")&' &,%' #8' &$,+' ,&+2&!" 4&-?6' $+' ")&' $+&' %$?')&

+/DFD#3 #4 /2H3 #E

< ' ' (' @&' ' 81,")&,' &' $!"&(')$' ' &4&,?' $+&' *)&,&' ")&' $-!1-$" #' ' #8' ")&' %#1' ' #8' $' ?' ' ' 1 "?' $!!#,(' .' "#' ")&' 5,#4 + #' +' #8' ") +' !' +)$--' 2,#(1!&' ' ,$!" #' ' -&++' ")$' ' 92&' !&6' ")&' 8,$!" #' $-' 5$," #8' ")&' +$ (' ' ' 1 "?' -&++' ")$' ' 92&' !&' +)$--')&' "$:&' ' 8,#%' ")&' %#1' ' ")&,&#86' $' (' +)$--' '#' @&' 2$?$@-&' @?' ")&' 88 !&,' #8' ")&' +$ (' #%% ++ #' &,+' 8#,' ")&' &(1!" #' ' #8' ")&' $" #' $-' 3&@"

' < - ' ' (' @&' ' 81,")&,' &' $!"&(6)$"' $--' 8&' ' ' 1 " &+6' #8' *)$"+#N &4&,' D ' (6' *) !)' +)$--' @&' 21,!)$+&(' $' (' .,$' "&(' 1 ' (&,' ")&' 5,#4 + #' +' #8' ") +' !"' X44)&")&,+1!)' 8&' ' ' 1 " &+' +)$--' !#%%&' !&' %%&($"&-?' E' ' #"[6' +)$--6' ' ")& ,' (1&' #1,+&' $+' ")&' +$%&')$--' 8$--' (1&' $' (' @&!#%&' 2$?$@-&6' @&' !$,, &(' "#' $' '&*' $' (' +&2$,$"&' !!#1' ' ' ")&' ##:+' #8' ")&' +$ (' #%% ++ #' &,+' 8 * ' ")&' &(1!" #' ' #8' ")&' $" #' $-' 3 &@' ' $' (' $--' ' ' 1 " &+' B8#,' &,%+' #8' &$,+' *) !)' +)$--' @&' 21,!)$+&(' $' (' .,$' "&(' 1 ' (&,' ") +' !' +)$--' ' - :&' $' ' &,' @&' $,, &(' "#' $' '&*' $' (' &2$,$"&' !!#1' ' ' "-_&' ##:+' 7 ' ")&' +$ (' #%% ++ #' &,+6

.D' ##I ^ 3 DE' 4/2#3DG' I#GD/' 3" E' H3' E"277 OD' H2// DG' 3 ' 2' EDC2/23D' H 3 #3!' 2E' %E ' #^ #I 3 DE!'. /' -D2/E

' ' (' @&' ' 81,")&,' &' $!"&(' ')$' *)&' &4&,' 5,##8' #8' ")&' .&' #8' $' ?' #% ' &&' +)$--')$4&' @&&' ' 2,#(1!&(' 1 ' (&,' ")&' 5,#4 + #' +' #8' ") +' !"6' $+')&,&, 'B$8"&,' (,&!"&(6' $' ?' 5&,+#' ' #,' 5&,+#' +' *)#' +-%-' @&' (&+ ,#1+' #8' 21,!)$+ ' .' $' ?' ' "1" "?' #,' ' ' 1 " &+6' *)&")&,' +1!)' ' ' 1 "?' +)$--' (&2&' (' 12#' ' ")&' 88' #8' +1!)' 5&,+#' ' #,' ' #8' X"- &' "#"$- %#1' ' #8' +1!)' ' ' 1 " &+' '#' &9!&&(' .' ")&' 1%')&,& 'B)&8@,&' %&' ' #' &([6' #' ")&' 8&' #8' .1!)' #% ' &&' X*)&")&,' +1!)' 8&' ' ' 1 " &+' +)$--')$4&' @&&' ' #, . '$--?' !#' ",$!"&(' 8#,' "#' !#%%&' !&' %%&($"&-?' #,' '#"[6' +)$--' @&' $' - @&,"?' +#' "#' (#>' $' (' 8#&' #, . '$-' 5,##8' #8' ")&' .&' #8' +1!)' M #% ' &&6A2,#(1!&(' $' ")&' %&' #8' ",&' 51,!)$+&' #8' ")&' 8 ,+' ' ' 1 "?' 12#' ' ")&' 8&' #8' +1!)' #% ' &&6' +)$--' @&' (&&%&(' +188 ! &' ' 8#,' ")$' 51,2#+&6' * ")#1' ")&' 5,#(1!" #' ' #8' $' ?' 681,")&,' 5,##8' #8' .&

0 I#3' #8' %%' &+' '%&%4E& A M

' (' @&' ' 81,")&,' &' $!"&(' ')$' 8#,' ")&' 51,2#+&' #8' $+!&,B' "$ ' ' .' 8,#%' %&' "#' %&' ")&' %#1' ' #8' ' ' 1 " &+' 8#,' 4&+' #,' &,%+' #8' &$,+' 2$?$@-&' 1 ' (&,' ")&' 1")#, "?' #8' ") +' !"6' ")&' +$ (' B '

+$ (' #%2",#--&,' H&'&,$-'#,' ++ +"$'" #%2",#--&,' $!" '.' 1'(&,' E"277 OD HD/'
")&' +$ (' #%% ++ #'&,+' +)$--6 * ") '' #1,"&&'' 3$?+' 2,&!&('.' ")&' 37. DG 3 ' 3"D'
8")' 3$?' #8' & ' ")&' &'")' 3$?' #8' ! " ' ")&' 8")' 3$?' #8'
& ' $'(' ")&' 8")' 3$?' #8' ' '' &$!)' $'(' &4&,?' &$,' >7+1&7)&,'
X!#%%&'! '.' #'' ")&' &'")' 3$?' #8' ! " ' 'g' ")#1+$'(' & .)" @2//2#3' 3 '
)1'(,&(' $'(' ") ,"?B"),&&[6' !&,"8?' "#' ")&' #%% ++ #'&,+' #8' +' 3"D' 2#]'. /'
$>&+"?;+' ,&$+1,?' ")&' %#1'" #8' ''1 "&+' 8#,' 4&+' $'(' #8'
''1 "&+' 8#,' &,,$+' #8' &$,+' 2$?$@-&' 1'(&,' ") +' !"6' ")&')$-8B?&$,-?' #8")&' (#'
5$?%&#"+' #8' *- !-_' +)$--' 8,#%' %&' "#' %&' @&' !)$,.&$@-&' 12#'' E 7 G23DG'
")&' +$ (' #'+#- ($"&(' 1'(' #'' &$!)' #8' +1!)' 3$?+' ,&+2&!" 4&-?' $'('
")&' +$ (' #%% ++ #'&,+' #8' ")&' ,&$+1,?6' #,' $'?'),&&' #,' %#,&' #8'
")&%6' +)$--' ")&,&12#'' #,(&,' $'(' (,&!"6' @?' E$,,$'" 1'(&,' ")&,'
$'(+6' ")&' Z"%' +2&! 8 &(' 8,#%' %&' "#' %&' '' &4&,?' +1!)' &," N
8 !$"&' "#' @&' ++1&(' $'(' 2$ (' #1" #8' ")&' +$ (' #'+#- ($"&(' 1'(' 8,#%'
%&6"#' %&' "#' ")&' H#4&,'#,' $'(' #%2$'?' #8' ")&' $':' #8' . '
"#' @&' @?' ")&%' 2-$!&(' "#' ")&' !!#1'" #8' ")&' +$ (' #%% ++ #'&,+'
8#,' "@W &(1!" #'' #8' ")&' $" #'$-' 3&@"6' 8#,' ")&' 51,2#+&+' #8' 2$? '.'
$--' +1!)' ''1 "&+' ,&+2&!" 4&-? A

6' '(' @&' "' 81,")&,' &'$!"&(6')$" $--' ''1 "&+' 8#,' 4&+' #,'O D' .'+26^
&$,+6' #8' *)$"+#&4&,' D '(6' *) !)' +)$--' @&' 21,!)$+&(' 1'(&,' ")&' O D#3' .' #^
5,#4 + #'+' #8' ") +' !"6' +)$--' @&' 2$?$@-&' @?' *#' &C1$-')$-8B?&$,-?' #I 3 DE'
5$?%&'"+6' "#' @&' ,&+2&!" 4&-?' %$(&' #'' ")&' 8")' 3$?' #8' & ' 4/2#3DG'
$'(' #'' ")&' 8")' 3$?' #8' & ' #,' #'' ")&' 8")' 3$?' #8' ' $'(' ")&' I#GD/' 3" E'
&'")' 3$?' #8' ! " ' '' &$!)' $'(' &4&,?' &$,6' $!!#,('.' "#' ")&' H3
,&+2&!" 4&' 5&, #(+6' $+')&,&'B$8"&,' %&'" #'&(6' * ") '' *) !)' $'?'
#'&?' +)$--' @&' 2$ (' 8#,' ")&' 51,!)$+&' #8' $'?' +1!)' ''1 "&+' 8#,'
8&' #,' &$,+6' #8' *)$"+#&4&,' D '(' ,&+2&!" 4&-?' $'(' ")&' 8 ,+")$-8B'
?&$,-?' 5$?%&'" #8' &4&,?' +1!)' ''1 "?' +#' 21,!)$+&(' +)$--' @&' %$(&'
$" ")&' %&+' 8#--#* '.[' X")$" +' "#' +$?6[' #'' ")&' 8")' 3$?' &&
'' ,&+2&!" #8' $--' +1!)' 51,!)$+&+' !#%2-&"&(' @?' ")&' $!"1$-' 5$?%&'"
#8' #'&?' '"#' ")&' $':' #8' . ' "#' ")&' !!#1'" #8' ")&' +$ ('
#%% ++ #'&,+')&,&'B78"&,' %&'" #'&(' $" $'?' %&' (1, '.' ")&'
T1$,"&,' &'('.' #'' ")&' &'")' 3$?' #8' ! " ' 2,&!&('.' +1!)' 8")'
3$?' #8' & ' -' #'' ")&' 8")' 3$?' #8' ' '' ,&+2&!" #8' $--' +1!)'
51,!)$+&+' +#' !#%2-&"&(' $" $'?' %&' (1, '.' ")&' T1$,"&' &'('.' #''
")&' 8")' 3$?' #8' & ' 2,&!&('.' ")&' 8")' 3$?' #8' -' #'' ")&'
8")' 3$?' *' & ' '' ,&+2&!" #8' $--' +1!)' 51,!)$+&+' +#' !#%2-&"&('
$" $'?' %&' (1, '.' ")&' T1$,"&,' &'('.' ")&' 8")' 3$?' #8' '
2,&!&('.' +1!)' 8")' 3$?' #8' & -' $'(' #'' ")&' &'")' 3$?' #8' ! " '
'' ,&+2&!" #8' $--' +1!)' 51,!)$+&+' +#' !#%2-&"&(' $" $'?' %&' (1, '.'
")&' T1$,"&,' &'('.' #'' ")&' 8")' 3$?' E&' 2,&!&('.' +1!)' &'")'
5R,' '! " -' $'(' $--' 81"1,&')$-8B?&$,-?' 5$?%&'"+' #8' &4&,?' +1!)'
''1 "?' +)$--' @&' %$(&' * ")' ,&8&,&'!&' "#' ")&' %&' #8' +1!)')$-8B'
?&$,-?' 5$?%&'"] 5,#4 (&(' $-*$?+6' ")$" 12#'' ")&' 3&$")' #8' $'?' Y I2/3D/76'
#%' '&&' '' ,&+2&!" #8' $'?' 8&' ''1 "?6' $' 1,$ &C1$-' "#' '&' #1,")' +26 O D#3' #
5$," #8' ")&' ''1 "?' (&2&'('.' 12#'' ")&' 8&' #8' +1!)' #%' '&&' *D23"' '
X#4&,' $'(' $@#4&' $)')$-8B?&$,-?' ,,&$,+' ")&,&#8' ,&+2&!" 4&-?[' +)$--') O #DD' .'
@&' 2$?$@-&' "#' ")&' 5&,+#'' #,' 5&,+#'+' &'" "-&(' "#' +1!)' ''1 "?6' #,' .D' ##I ^
) +6')&,6' #,' ")&,' 9&!1"#,+' #,' (% ' +",$"#,+6' X$+' ")&' $+&' %$?' @&6[' 3 DE
#'' ")&')$-8B?&$,-?' 3$?+' #8' 5$?%&'" '&9" +1!!&&('.' ")&' 5,#(1!" #''
#8' 5,##8' "#' ")&' +$ (' 81+"&&+6' $'(' @?' ")&%' "#' ")&' +$ (' #%% ++ #'&,+6'
!&," 8" '.' ")&' 3&$")' #8' +1!)' #%' '&&[' 2,#4 (&(' ")$" +12)' 5,##8'
+' +)$--

+)$--' @&' 2,#(1!&(' "#' ")&' +$ (' #%% ++ #'&,+' * ") '') ,"?' 3$?+' '&9"' 2,&!&(' .' ")&' 8")' 3$?' #8'& ' 8")' 3$?' #8' ' 8")' 3$?' #8'& ' $'(' &'")' 3$?' #8' ! " ' ,&+2&!" 4&-?' '' &4&,?' &$,6' $'(' ")$"' +1!)' -$+"B%&'" #'&(' 5$?%&'"' +)$--' @&' !-$ %&(' * ") '' *#' &$,+' $8"&,' ")&' 38&$")' #8' +1!)' #% '&&6' @1"' '#"' #")&,* +&'] 5,#4 (&(' ")&' #1,")' 5$,"' #8' $'?' &92 ,&(' 8&' ''1 "?' 2$?$@-& 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"' +)$--' '#"' @&' 2$?$@-&' #,' @&' 2$ (' 12#'' #,' '' ,&+2&!"' #8' $'?' (&8&,,&(' 8&' ''1 "?6' 1'-&++' '&')$-8B' ?&$,-?' 5$?%&'"' #8' +1!)' (&8&,,&(' 8&' ''1 "?' +)$--')$4&' @&&'' $!"1$--?' 2$ (' ,' @&!#%&' (1&' $"' ")&' %&' #8' ")&' 3&!&$+&' #8' +1!)' #% '&&

+/ F E '2E' 3 ' GD.D//DG' #' #O3 DE'

VA' '(' @&' "' 81,")&,' &'$!"&(')$"' 8#,' ")&' 2$!&' #8' #1,"&&'' 3$?+' '&9"' $8"&,' $'?' #8' ")&' +$ (' T1$,"&,-?' 3$?+' 8#,' 5$?%&'"' #8' ")&' +$ (' ''1 " &+' ,&+2&!" 4&-?6' '#' $,.$ '' #,' #'",$!"' +)$--' @&' %$(&' @?' ")&' +$ (' ,1+"&&+' #,' $'$.&,+' #'' @&)$-8' #8' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"6' 8#,' ")&' H,$''' #,' 51,!)$+&' #8' $'?' ''1 "?' 1'(&,' ") +' !"ė$'?' ") '.')&,& 'B@&8#,&' !#'"$ '&(' "#' ")&' !#'",$,?' '' $'?* +&' '#"* ")+"$'('.

2/42 #E' . /' ##I 3 DE' # 3' 3 ' OD' O2GD' . /' A I/3DD#' *26E'2.3D/'3"D' 9YI2/3D/76' *26' .' +26^ OD#3

%' '(' @&' "' 81,")&,' &'$!"&(6')$"' $--' #'",$!"+' 8#,' 8&' 'N '1 " &+' #,' ''1 " &+' 8#,' $' - % "&(' &,%' #8' &$,+6' *)&")&,' %%&($"&' #,' (&8&,,&(6' *) !)' +)$--' @&' &'"&,&(' '"#' @?' ")&' ,1+"&&+' #,' $'$.&,+' #8' $'?' $4 '.+' $':6' #,' @?' ")&' ,1+"&&+' #,' $'$.&,+' #8' $'?' #! &"?' '' $'?' 2$, +)' #,' 5-$!&' $1")#, L&(' @?' ") +' !"' "#' !#'",$!"' 8#,' ")&' +$%&6' +)$--' '' &$!)' $'(' &4&,?' $+&' @&' (&&%&(' $'(' "$:&'' "#' @&' #'",$!"+' %$(&' @?' ")&' +$ (' ,1+"&&+' #,' $'$.&,+' " @&)$-8' #8' ")&' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"] 5,#4 (&(' $-*$?+6' ")$"' '#' 8&' ''1 "?' +)$--' @&' 2&,% ""&(' "#' @&' !#'",$!"&(' 8#,6' '#' +)$--' $'?' 5$?%&'"' 8$'?' 8&' ''1 "?' @&' %$(&6' 1'(&,' ") +' !"' 5,#4 + #'+' #8' ") +' !"6' V'" -' 5,##8' #8' ")&' .&' *'' ")&' 5&,+#'' 2,#2#+&(' "#' @&' '#% '$"&(6' $'(' 1'" -' 5,##8' #8' ")&' 9 +"&'!&' $'(' (&'" "?' #8' ")&' ,&+2&!" 4&' #% '&&+' 12#'' *)#+&' 8&' ")&' 5$?%&'"' #8' $'?' ''1 "?' +)$--' @&' (&%$'(&(6' +)$--')$4&' @&&'' 2,&4 #1+-?' +1@% ""&(' "#' $'(' $22,#4&(' #8' @?6' ")&' +$ (' #%% ++ #'&,+6' #,' @?' ")&' #%2:","(-&,' H&'!%-' #,' ++ +"$''' #%2",#--&,' $!" '.' V'(&,' ")&' +$ (' #%% +N + #'&,+' $'(' ")&' +$ (' ''1 " &+' 8#,' 4&+' $'(' 8#,' &,%+' #8' &$"+' +)$--' @&' 2-$!&(' 1'(&,' ")&' +$%&' &.1-$" #'+' $+' $,&' !#'"$ '&(' '' ")&' !"+' '#*' ''8#,!&' 8#,' &'$@-' '.' ")&' +$ (' #%% ++ #'&,' "#' .,$'' 8&' ''1 " &+' $'(' ''1 " &+' 8#,' &,%+' #8' &$,+6' +#' 8$,' $+' ")&' +$%&' !$'' @&' %$(&' $22- !$@-&' ")&,&"#6' +$4&' $'(' &9!&2"' ")$"' '#')$,.&' @?' *$?' #8' #%% ++ #'' +)$--' @&' %$(&' @?' ")&' $(' #%% ++ #'&,+' $'?' %&' #'' $'?' 1%' #8' #'&?' *) !)' +)$--' @&' 2$ (' @?' $'?' 5&,+#'' 8#,' ")&' 51,!)$+&' #8' $'?' ''1 " &+' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"6' $'(' $-+#' $!!#;(' '.' "#' +1!)' '+",1!" #'+' $'(' &.1-$" #'+' $+' ")&' +$ (' #%% +N + #'&,+6' #,' ")&' +$ (' #%2",#--&,' H&'&,$-' #,' ++ +"$''' #%2",#--&,6' +)$--' 8,#%' " %&' "#' " %&' !$'' '#' '"#' &8&!"' ")&' 5,#4 + #'+' #8' ") +' !"6' $'(' $-' ")&' 5,#4 + #'+' +6' 5&'$-"" &+6' $'(' #,N 8&' "1,&+' '' ")&' +$ (' -$+"B%&'" #'&(' !"+' !#'"$ '&(' +)$--' $22-?' $'(')&' '' 8#,!&' * ") '.&,' "#' $'?' $'(' $--' ''1 " &+' .,$''&(' 1'(&,' ") +' !"' ' ")&' +$%&' %$''&,' $'(' "#' ")&' +$%&' &9"&'"' $+' ")#1.)' ")&' +$%&' *&,&' &92,&++-?' &'$!"&(')&,& '6' &9!&2"' $+' $,&' ")&' +$%&' +)$--' @&' $-"&,&(' #,' 4$, &(' @?' ") +' !"' !"

(#3/2H3E' . /' ##I 3 DE' 3 ' OD'E2#H3 #DG' O6' (O O E' ' E #D/E' . /' =DGIH3 #' .')23 #27' *DO3' OD. /D' 3"D6' 2/D' D#^ 3D/DG' #3

6 < ʻ '(ʻ@&ʻ "81,")&,ʻ&'$!"&(ʻ)$" 12#'ʻ ")&ʻ 5 #(1!" #'ʻ "#ʻ ")&ʻ 2,#2&,ʻ 88 !&,ʻ #8ʻ ")&ʻ +$ (ʻ #%% ++ #'&,+ʻ 8#,ʻ ")&ʻ &(1!" #'ʻ #8ʻ ")&ʻ $" #'$-ʻ 3&@" #8ʻ5,##8ʻ#8ʻ ")&ʻ 9 +"&'!&ʻ$'(ʻ (&'" "?ʻ #8ʻ ")&ʻ ,&+2&!N "4&ʻ #% '&&+6ʻ $+ʻ)&,& '@&8#,&ʻ &'$!"&(6ʻ $'(ʻ 12#'ʻ "7&ʻ +$%&ʻ @& '.ʻ $22,#4&(ʻ @?ʻ +1!)ʻ 88 !&,6ʻ " +)$--ʻ @&ʻ -$*81-ʻ 8#,ʻ a ʻ *#ʻ ,1+"&&+ʻ #8ʻ ")&ʻ $4 '.+ʻ $':ʻ *)&,& 'ʻ +1!)ʻ ,&+2&!" 4&ʻ #% '&&+ʻ +)$--ʻ @&ʻ ,&. +"&,&(6ʻ $'(ʻ $-+#ʻ 8#,ʻ $'?ʻ *#ʻ ,1+"&&+ʻ #8ʻ $'?ʻ #! &"?ʻ (1-?ʻ &+"$@- +)&(ʻ 'ʻ $'?ʻ 5$, +)ʻ 1'(&,ʻ ") +ʻ !"6ʻ "#ʻ (,$*ʻ 12#'ʻ ")&ʻ +$ (ʻ #%% ++ #'&,+ʻ 8#,ʻ ")&ʻ)$-8B?&$,-?ʻ 5$?%&'" #8ʻ ")&ʻ +&4&,$-ʻ ''1 " &+ʻ ")&'ʻ (1&ʻ 12#'ʻ ")&ʻ 4&+ʻ #8ʻ +1!)ʻ #% '&&+ʻ ,&+2&!" 4&-?ʻ ʻ $'(ʻ +1!)ʻ 88 !&,ʻ +)$--ʻ $'(ʻ)&ʻ +ʻ)&,&@?ʻ ,&C1 ,&(ʻ "#ʻ 2$?ʻ "#ʻ ")&ʻ +$ (ʻ ,1+"&&+ʻ $+ʻ $8#,&+$ (>ʻ #,ʻ ")& ,ʻ ,&+2&!" 4&ʻ .&'"+6ʻ '#*ʻ $22# '"&(ʻ #,ʻ)&,&$8"&,ʻ "#ʻ @&ʻ $22# '"&(6ʻ * ") 'ʻ 4&ʻ 3$?+ʻ $8"&,ʻ")&ʻ5,#(1!" #'ʻ #8ʻ+1!)ʻ 3,$8"6ʻ ")&ʻ +&4&,$-ʻ)$-8B?&$,-?ʻ 5$?%&'"+ʻ ")&'ʻ (1&

'#ʻ +/ GIH^ 3 #ʻ .ʻ+/ .ʻ .ʻ & E3D#HD!ʻ H!ʻ (D/3 .^ H23Dʻ E"27ʻ ODʻ 4/2#3DGʻ. /ʻ +26 O D#3ʻ .ʻ ##I 36ʻ. /ʻ .D

< ʻ '(ʻ@&ʻ "81,")&,ʻ &'$!"&(6ʻ)$" 'ʻ $--ʻ $+&+ʻ #8ʻ ''1 " &+ʻ 8#,ʻ &,%+ʻ #8ʻ &$,+ʻ " +)$--ʻ)&ʻ -$*81-ʻ 8#,ʻ ")&ʻ +$ (ʻ ,1+"&&+6ʻ $+ʻ)& ;& 'Bʻ @&8#,&ʻ %&'" #'&(6ʻ "#ʻ (,$*ʻ 12#'ʻ ")&ʻ +$ (ʻ #%% ++ #'&,+ʻ 8#,ʻ ")&ʻ)$-8Bʻ ?&$,-?ʻ 5$?%&'" #8ʻ ")&ʻ +&4&,$-ʻ -$+"B%&'" #'&(ʻ ''1 " &+ʻ ")&'ʻ (1&ʻ $'(ʻ ")&ʻ +$ (ʻ 88 !&,ʻ +)$--ʻ $'(ʻ)&ʻ +ʻ)&,&@?ʻ ,&C1 ,&(ʻ "#ʻ 2$?ʻ "#ʻ ")&ʻ +$ (ʻ ,1+"&&+ʻ #,ʻ ")& ,ʻ ,&+2&!" 4&ʻ .&'"+6ʻ '#*ʻ $22# '"&(ʻ #,ʻ)&,&$8"&,ʻ (1-?ʻ $22# '"&(6ʻ * ") 'ʻ 4&ʻ 3$?+ʻ $8"&,ʻ ")&ʻ 3,$8"ʻ +ʻ 2,&+&'"&(6ʻ ")&ʻ +&4&,$-ʻ)$-8B?&$,-?ʻ 5$?%&'"+ʻ ")&'ʻ (1&

##I 3 DEʻ. /ʻ &,%+ʻ .ʻ -D2/Eʻ 3 ʻ ODʻ C2 Gʻ Z 3" I3ʻ +/ .

< ʻ '(ʻ@&ʻ "81,")&,ʻ&'$!"&(ʻ)$" ")&ʻ .)"6ʻ "-&6ʻ '"&,&+"6ʻ $'(ʻ &'&8 " 'ʻ$'(ʻ ʻ$'?ʻ ''1 "?6ʻ #8ʻ*)$"+#&4&,ʻ D '(6ʻ *)&")&,ʻ+1!)ʻ ''1 "?ʻ+)$--ʻ @&ʻ %%&($"&ʻ #,ʻ (&8&,,&(6ʻ *) !)ʻ %$?ʻ @&ʻ 21,!)$+&(ʻ 1'(&,ʻ ")&ʻ5,#4 + #'+ʻ #8ʻ ") +ʻ !"6ʻ +)$--ʻ '#" @&ʻ ",$'+8&,,$@-&ʻ #,ʻ $++ .'Bʻ $@-&ʻ @?ʻ ")&ʻ 51,!)$+&,ʻ ")&,&#8ʻ +#ʻ $+ʻ "#ʻ &'$@-&ʻ ")&ʻ ++ .'&&ʻ "#ʻ ,7& 4&ʻ ")&ʻ +$%&ʻ (1, '.ʻ ")&ʻ 8&" %&ʻ #8ʻ ")&ʻ +$ (ʻ 51,!)$+&,6ʻ &9!&2" 'ʻ !$+&ʻ #8ʻ) +ʻ #,ʻ)&,ʻ '+#-4&'!?ʻ #,ʻ $':,12"!?6ʻ *)&'ʻ ")&ʻ +$%&ʻ +)$--ʻ @&!#%&ʻ ")&>ʻ5,#2&,"?ʻ #8ʻ) +ʻ #,ʻ)&,ʻ ++ .'&&ʻ #,ʻ ++ .'&&+ʻ 8#,ʻ ")&ʻ &'&8 " #8ʻ) +ʻ #,ʻ)&,ʻ ,&("#,+6ʻ $'(ʻ ")&ʻ +$%&ʻ +)$--6ʻ 'ʻ +1!)ʻ $+&6ʻ $8"&,ʻ (1&ʻ #" !&ʻ #8ʻ+1!)ʻ '+#-4&'!?ʻ #,ʻ $':,12"!?6ʻ @&ʻ 2$ (ʻ "#ʻ +1!)ʻ ++ .'&&ʻ #,ʻ ++ .'&&+$8#,&+$ (ʻ$'(ʻ 'ʻ!$+&ʻ#8ʻ$'?ʻ+1!)ʻ $':,12"!?ʻ #,ʻ '+#-4&'!?6ʻ ")&ʻ +$ (ʻ #%% ++ #'&,+ʻ 8#,ʻ ")&ʻ &(1!" #'ʻ #8ʻ ")&ʻ $" #'$-ʻ 3&@" +)$--ʻ ,&21,!)$+&ʻ ")&ʻ +$ (ʻ ''1 "?ʻ $!!#,('.ʻ "#ʻ ")&ʻ &$-1&ʻ ")&,&#86ʻ ")&ʻ+$%&ʻ @& '.ʻ !#%21"&(ʻ 12#'ʻ ")&ʻ+$%&ʻ $@-&+ʻ 12#'ʻ *) !)ʻ ''1 "?ʻ *$+ʻ #,ʻ . '$-?ʻ 21,!)$+&(ʻ 'ʻ $'(ʻ ")&ʻ &!& 2"ʻ #8ʻ ")&ʻ ++ .'&&ʻ #,ʻ ++ .'&&+ʻ +)$--ʻ @&ʻ $ +188 ! &'" 3 +!)$,.&ʻ "#ʻ ")&ʻ +$ (ʻ #%% ++ #'&,+6

##I 3 DEʻ 4/2#3DGʻ I#ʻ ,$@&A7 !&2ʻ #ʻ H2EDʻ .ʻ% 2#]/ I C3H6 /7#E 7FD#H/

< ʻ '(ʻ@&ʻ "81,")&,ʻ&'$!"&(ʻ)$" 8&ʻ ''1 " &+ʻ$'(ʻ ''1 " &+ʻ 8#,ʻ &,%+ʻ #8ʻ &$,+6ʻ 21,!)$+&(ʻ 1'(&,ʻ ")&ʻ5,#4 + #'+ʻ #8ʻ") +ʻ !"6ʻ +)$--ʻ '#" @&ʻ +1@>&!"ʻ #,ʻ -$@-&ʻ "#ʻ $'?ʻ $9&+6ʻ)$,.&+6ʻ #,ʻ %2#+ " #'+ʻ *)$"Bʻ &4&,ʻ>ʻ$'(ʻ ")$"ʻ $--ʻ +1!)ʻ ''1 " &+ʻ +)$--ʻ @&ʻ (&&%&(ʻ 5&,+#'$-ʻ +"$"&6ʻ $'(ʻ ''1 " &+ʻ $'(ʻ '"&,&+"ʻ +)$--ʻ '#"ʻ @&ʻ (&2&'(ʻ 12#'ʻ ")&ʻ 8&ʻ #8ʻ ")&ʻ 5&,+#'ʻ K&'" "-&(ʻ ")&,&"#ʻ +)$--ʻ .#ʻ "#ʻ ")&ʻ 9&!1"#,+ʻ #,ʻ $(%''+",$"#,+ʻ #8ʻ+1!)ʻ 5&,+#'ʻ $+ʻ 5&,+#'$-ʻ +"$"&6ʻ $'(ʻ+)$--ʻ '#" @&ʻ (&+!&'('.ʻ @-&ʻ 8#ʻ ")&ʻ)& ,ʻ &,+

Eʻ 3 ʻ 3"Dʻ 2O 7 36ʻ .ʻ $9&7+ 7A E"27ʻ ODʻ +D/E #27ʻ E323D!ʻ

< ʻ 5,#4 (&(ʻ $-*$?+6ʻ $'(ʻ @&ʻ "&'$!"&(6ʻ)$" *)&'&4&,ʻ .ʻ+)$--ʻ)$22&'ʻ ")$"ʻ $'?ʻ 5&,+#'6ʻ)$4 '.ʻ %$(&ʻ $'? '&ʻ #,ʻ %#,&ʻ $''1$-ʻ 5$?%&'"

.ʻ2##I27ʻ +26 O D#3Eʻ 2/D

/' .' +2/36' G D' OD. /D' !",$% !&+' 277+26 0 D#3D' 3 '@&' /D3 I /#' &JA

5$>7%&'" #,' 5$?%&'"+6' '' $+&+' *)&,&' ")&' #'+ (&,$"#'' 8#,' $'? (&8&,,&(' 8&' ''1 "?' #,' ''1 "?' 8#,' &,%+' #8' &$,+' +)$--' @&' @? $'#)$-' 5$?%&'"+' 8#,' #,' '' ")&' 51,!)$+&' #8' $'?' (&8&,,&(' ''1 "?' 1'(&,' ") +' C76' #,' ")& ,' ,&+2&!" 4&; 9&!1"#,+' #,' (% ' +",$"#,+6' +)$--' %$:&' (&8$1-'' %Q[$? ' .' #,' !#'" '1 ' .' "#' %$:&' ")&' &+ (1&' #8' +1!)' $''1$-' 5$?%&'"+' 1'" -' ")&' *)#-&' #'+ (&,$"#'' 8#,' $'?' +1!)' 8& ''1 "?' #,' ''1 "?' 8#,' &,,$+' #8' &$,+' +)$--' @&' 81--?' 2$ ('$!!#,(' .' "#' 8#&' .,&&%&'" 8#,' ")&' +$%&6' #,' '' !$+&' ")&' 5&,+#'' +#' !#'",$!" ' .' 8#,' +1!)' 8&' ''1 "?' #,' ''1 "?' 8#,' &,%+' #8' &$,+' +)#1-(' (&' 2,&4 #1+' "#' ")&' +$ (' ''1 "?' @&!#% ' .' 2$?$@-&6' ")&'' $'(' "" &4&,?' +1!)' $+&' ")&' %#1'" #8' $--' $''1$-' 5$?%&'"+' *) !)' +)$--')$4&' @&&'' $!"1$--?' %$(&' 2,&4 #1+' "#' +1!)' 3&8$1-'' +)$--' @&' ,&"1,'&(6' &9!-1+ 4&' #8' '"&,&+"6' "#' ")&' +$ (' 5&,+#'' +#' %$:' ' .' (&8$1-'' $+' $8#,&+$ ('>' #,' '' !$+&' #8' ")&' 3&$")' #8' ")&' 5$,"?')$4 ' .' &'"&,&(' '"#' +1!)' #'",$!" $+')&,&>'B@&8#,&' %&'" #'&(6' ")&' $''1$-' #,' #")&,' 5$?%&'" #,' 5$?%&'"+' *) !)' 8#$--')$4&' @&&'' $!"1$--?' %$(&' 2,&4 #1+' "#' @ +' 3&$")' +)$--' @&' 2$ (6' &9!-1+ 4&' #8' '"&,&+"6' "#') +' 9&!1"#,+' #,' (% ' +",$"#,+' $'(' ")$" ")&' #'&?' +#' ,&"1,'&(' +)$--' @&' !)$,.&(6' 2$ (6' $'(' (&8,$?&(' #1" #8' 8#&' #' &+' +"$'(' .' '' ")&' $%&+' #8' ")&' #%% ++ #'&8+' 8#,' ")&' D&(1!"8#$' #8' ")&' $" #'$-' 3&@"$" 8#&' $' :' . ' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"

&. +"&,+6' &!& 2"+6' Z!' + 2'21"7'

' '(' @&' " 81,")&,' &'$!"&(')$" '#' "$%2' 31"?' *)$"&4&,' .@$--' @&' 2$ (' #,' 2$?$@-&' 12#'' #,' '' ,&+2&!" #8' $'?' #2?' #8' $'?' &. +"&,' #8' ")&' ,")' #,' $2" +%' #,' $,, $.&' #,' 1, $-' #8' $'? #% '&&' #,' #")&,' 5&,+#'6' #,' 12#'' #,' '' ,&+2&!" $'?' &," 8 !$"&' #,' 3&!-$,$" #'' "#' @&' %$(&' #,' "$:&'' ''21,+1$'!&' #8' ") +' !"6' #,' $'? &," 8 !$"&' #,' #")&,' '+",1%&'' *)$"+#&4&,' ,&+2&!" ' .' ")&' 5$?%&'" #8' #'&?' 8#,' ")&' 51,!)$+&' #8' $'?' ''1 "?' 1'(&,' ") +' !"6' #,' $'? 5#*&,' #8' "'#,'&?' $1")#,L ' .' ")&' !&%2'>' #,' $'?' &!& 2" 8#,' ")&' 5$?%&'" #8' $'?' +1!)' ''1 "?' #,' $'?' 5$," ")&,&#8' @1" ")$" ")&' M+$%&' +)$--' @&' ,&+2&!" 4&-?' 8,&&' 8,#%' $--' "$%2' 31" &+' *)$"+#&4&,6' $'?' ") 7' '$'?' !"%' !"+' "#' ")&' !% ",$,?' '#"* ")+"$'(' .6

CC /#3 #D13'

' '(' @&' " 81,")&,' &'$!"&(6')$" " +)$--' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"6' $'(' 8#&?' $,&')&,&@?' $18##,"&&(' $'(' &%2#*&,&(6' 8,#%' %&' "#' %&' "#' $22#'' +1!)' 88 !&,+6' -&,:+6' $'(' #")&,' 5&,+#'+' $+' %$?' @&' '&!&++$,?' 8#,' K!$,,? ' .' ") +' !' '"#' &9&!1" #'6' $'(' $+' %$?' @&' $22 * &('#8' @?' ")&' #%% ++ ##&,+' #8' +' $>&+"?;+' ,&$+1,?

8#,' GD./26 #4' >!2&'&&+$",' 9&!7#'7' ")+' !"

-' '('@&' "81,")&,'&'$!"&(')$" "+)$--)&' -$*81-' 8#,' ")&' #,(' .)' 7;!$+1,&,6' j,' ")&' #%% ++ #'&,+' ' +' $>&+"?;+' ,&$+1,?6' %' $'?'),&&' #,' %#,&' #8' ")&%' 8#,' 8#&' %&' @&' .6' "#' #,(&,' $'(' (' ,&!" "#' @&' ++1&(' $'(' 2$ (6' #1" #8' ")&' 1'(' 12#'' *) !)' ")&' +"$@- +)%&'' #8' 8#&' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"' +' &)$,7B' $)-&6' $'?' 1%' #,' 1%+6' #8' #'&?' 8#,' ")&' 5$?%&'" #8' $-$, &+' "#' 88 !&,+' $'(' -&,:+' $!" ' .' '' ")&' 9&!1" #'' #8' ") +' !"6' '' +1!)' $''&,' $+' ")&' +$ (' #,(' .)' ,&$+1,&,6' #,' #%% ++ #'&,+' #8' ")&' ,&$+1,?6' #,' $'?'),&&' #,' %#,&' #8' ")&%6' +)$--' 8,#%' %&' "#' %&' ") '8 ' $'(' ,&$+#'$@-&' 5,#4 (&(' $-*$?+6' ")$" $'?' !(&'"$- &92&'+&+' '!1,,&(' @?' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"' '' !$,,? ' .' %&8#' &9&!1" #'' ") +' !"6' 8#,' 8#&' +$ (!"

!"ʿ %$(&ʿ $'(ʿ 2$++&(ʿ 'ʿ ")&ʿ '")ʿ &$,ʿ #8ʿ ")&ʿ & .'ʿ #8ʿ D '.ʿ
ʿ ")&ʿ #1,")6ʿ '" "1-&(ʿ ʿ ʿ ʿ ʿ ʿ * ʿ ʿ IHʿQʿ!ʿ
$ ʿ ʿ ʿ ʿ(+ ʿ #,ʿ ")&ʿ !"ʿ %$(&ʿ $'(ʿ 2$++&(ʿ 'ʿ ")&ʿ
&'")ʿ &$,ʿ #8ʿ ")&ʿ & .'ʿ #8ʿ 0 ʿ ʿ ")&ʿ #1,">6ʿ '" "1-&(ʿ ʿ - HʿQʿ!0 ʿ
ʿ ʿ ʿ ʿ * ʿ ʿ $ ʿ #ʿ +1 ʿ ʿ
+)$--ʿ $'(ʿ %$?@&ʿ (&8,$?&(ʿ @?ʿ ")&ʿ #%% ++ #'&,+ʿ 8#,ʿ")&ʿ &(1!" #'ʿ #8ʿ
")&ʿ $" #'$-ʿ 3&@"ʿ #1"ʿ #8ʿ $'?ʿ #' &+6ʿ "#!:+6ʿ #,ʿ 1'(+ʿ +"$'('.ʿ 'ʿ
")&ʿ $%&+ʿ #8ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ $"ʿ ")&ʿ $':ʿ #8ʿ . ,

8ʿ '(ʿ@&ʿ "ʿ 81,")&,ʿ&'$!"&(ʿ)$"ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ $'?ʿ YI /I0ʿ .ʿ
),&&ʿ#,ʿ %#,&#8ʿ")&ʿ 2%% ++ #'&,+ʿ 8#,ʿ")&ʿ &(1!" #'ʿ #8ʿ")&ʿ $" #'$-ʿ (0 0 Eʿ
3&@"ʿ 8#,ʿ ")&ʿ %&ʿ @& '.ʿ "#ʿ &9&!1"&ʿ $'(ʿ (#ʿ $--ʿ $""&,+ʿ $'(ʿ) '.+ʿ
) !)ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ $,&ʿ ,&C1 ,&(ʿ #,ʿ &%2#&,&(ʿ "#ʿ (#ʿ 8#,ʿ
")&ʿ 9&!1" #'ʿ #8ʿ ") +ʿ !"

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ&'$!"&(ʿ)$"ʿ ")&,&ʿ +)$--ʿ @&ʿ 2,&2$,&(ʿ HH I#3ʿ 3 ʿ
$'(ʿ$''1$--?ʿ -$ (ʿ @&8#,&ʿ @#")ʿ #1+&+ʿ #8ʿ 5$,- $%&'"6ʿ #'ʿ #,ʿ @&8#,&ʿ ")&ʿ ODʿ 2 1 # 2 7 6ʿ
*&'"?B8 8")ʿ 3$?ʿ ʿ 'ʿ &4&,?ʿ &$,ʿ 8ʿ 5$,- $%&'"ʿ +)$--ʿ @&ʿ 72 Gʿ OD. /Dʿ
")&'ʿ + "" '.6ʿ $'(ʿ ʿ 5$,- $%&'"ʿ +)$--ʿ '#"ʿ @&ʿ ")&'ʿ + "" '.6ʿ ʿ * ") 'ʿ +2/7 2 0 D#3ʿ
#1,"&&'ʿ 3$?+ʿ $8"&,ʿ ")&ʿ #%%&'!&%&'"ʿ #8ʿ ")&ʿ "- &'ʿ '&9"ʿ &++ #'ʿ #8ʿ .ʿ ##I 3 DEʿ
5$,- $%&'"6ʿ $"ʿ !!#1'"6ʿ %$(&ʿ 12ʿ @?ʿ ")&ʿ #%% ++ #'&,+ʿ 8#,ʿ ")&ʿ 4/2#3DG!ʿ 2#Gʿ
&(1!" #'ʿ #8ʿ")&ʿ $" #'$-ʿ 3&@"ʿ "#ʿ ")&ʿ 8")ʿ 3$?ʿ #8ʿ& ʿ 2,&!&(N .ʿ B #D6ʿ
'.6ʿ #8ʿ ")&ʿ .,#++ʿ %#1'"ʿ #8ʿ $--ʿ 1%+ʿ #8ʿ #'&?ʿ 2$ (ʿ "#ʿ ")&ʿ +$ (ʿ C2 Gʿ .O/ʿ
#%% ++ #'&,+6ʿ $'(ʿ ")&ʿ .,#++ʿ %#1'"ʿ #8ʿ ''1 "&+ʿ 8#,ʿ 4&+ʿ $'(ʿ 8#,ʿ ##I 3 DE
&,%+ʿ #8ʿ &$,+ʿ *) !)ʿ +)$--ʿ)$4&ʿ @&&'ʿ .,$'"&(ʿ 8#,ʿ ")&ʿ +$%&6ʿ 1'(&,ʿ
")&ʿ 5,#4 + #'+ʿ '.ʿ") +ʿ !"6ʿ *") 'ʿ")&ʿ &$,ʿ &'('.ʿ #'ʿ ")&ʿ 8")ʿ 3$?ʿ
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")&,ʿ +$ (ʿ !!#1'"+ʿ 'ʿ 21,+1$'!&ʿ #8ʿ ")&ʿ 5,#4 + #'+ʿ #8ʿ ") +ʿ !"ʿ "#ʿ @&ʿ E #D/Eʿ #ʿ
'4&+"&(ʿ 8,#%ʿ %&ʿ "#ʿ %&6ʿ 1'(&,ʿ +1!)ʿ &.1-$" #'+ʿ $+ʿ ")&ʿ +$ (ʿ 2HH I#3ʿ .ʿ
#%% ++ #'&,+ʿ +)$--ʿ (,&!"6ʿ 'ʿ")&ʿ 51,!)$+&ʿ #8ʿ $'?ʿ $':ʿ ''1 "&+6ʿ 3" Eʿ H3ʿ 3 ʿ
#,ʿ ''1 "&+ʿ 8#,ʿ &,%+ʿ #8ʿ &$,+6ʿ #,ʿ 9!)&C1&,ʿ --+6ʿ #,ʿ 'ʿ& ")&,ʿ#8ʿ ODʿ #FDE3DGʿ ʿ
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*) !)ʿ +$ (ʿ $':ʿ ''1 "&+ʿ $'(ʿ 9!)&C1&,ʿ --+ʿ X$+ʿ ")&ʿ $+&ʿ %$?ʿ @&[##I 3 DEʿ
+)$--ʿ @&ʿ 8#,")*")ʿ !$'!&--&(6ʿ $'(ʿ $--ʿ '"&,&+"ʿ #,ʿ 3 4 (&'(+ʿ #"ʿ +1!)ʿ . /ʿ D/ 0ʿ .ʿ
$':ʿ ''1 "&+ʿ +)$--ʿ !&$+&ʿ "#ʿ @&ʿ !)$,.&(ʿ 12#'ʿ #,ʿ "#ʿ @&ʿ ++1&(ʿ #1"ʿ - D2/Eʿ /ʿ
#8ʿ ")&ʿ #'+#- ($"&(ʿ 1'(ʿ 8,#%ʿ $'(ʿ $-"&,ʿ ")&ʿ 3$?ʿ 12#'ʿ *) !)ʿ $'?ʿ &H"D\ID/ʿ
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% ++ #'&,+ʿ 5,#4 (&(ʿ '&4&,")&-&++6ʿ ")$"ʿ "+)$--ʿ $'(ʿ %$?ʿ @&ʿ -$*81-ʿ 8#,ʿ E"277ʿ ODʿ H2#^
")&ʿ +$ (ʿ #%% ++ #'&,+ʿ 8#,ʿ ")&ʿ &(1!" #'ʿ #8ʿ ")&ʿ $" #'$-ʿ 3&@"ʿ "#ʿ HD77DG
,&"$ 'ʿ $'(ʿ ,&+&,4&ʿ 8,#%ʿ %&ʿ "#ʿ %&ʿ +#ʿ %1!)ʿ #8ʿ +1!)ʿ #' &+ʿ $+ʿ (0 0 E^
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$+ʿ)&,& 'B@&8#,&ʿ (,&!"&(6ʿ "#ʿ +1!)ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ *)#ʿ +)$--ʿ)$4&ʿ .ʿE I H"ʿ I 0 Eʿ
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") +ʿ !"6ʿ @?ʿ $''1$-ʿ #,ʿ #")&,ʿ 5$?%&'"+6ʿ @1"ʿ *)#6ʿ 8,#%ʿ 3&$")ʿ #,ʿ #")&,N B #D6ʿ
*&+&6ʿ %$?ʿ '@"ʿ @&ʿ &'$@-&(ʿ "#ʿ %$:&ʿ .##(ʿ $'(ʿ :&&2ʿ 12ʿ ")&ʿ +$%&6ʿ #,ʿ "#ʿ H72 0 DGʿ #ʿ 9
) +6ʿ)&,6ʿ #,ʿ ")&,ʿ 9&!1"#,+ʿ #,ʿ (% ' +",$"#,+6ʿ $+ʿ *&--ʿ $+ʿ "#ʿ (&ʿ H2ED .*D23"!ʿ
9&!1"#,+ʿ #,ʿ (% ' +",$"#,+ʿ #8ʿ +1!)ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ *-#ʿ %$?ʿ Hʿ .ʿ+2/36ʿ
(&ʿ @&8#,&ʿ ")&ʿ ''1 "?ʿ *) !)ʿ)&6ʿ +)&6ʿ #,ʿ ")&?ʿ %$?ʿ)$4&ʿ !#'",$!"&(ʿ C I /H"2E #4ʿ
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< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' "' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"' 8,#%' %&' "#' %&6' $'(' $+B")&?' +)$--' ") ' :' 8 "6' "#' +&--' $'(' (+2#+&' #8' ")&' $':' ''1 " &+' $'(' 9!)&C1&,' --+6' #,' $'?' 5$," ")&,&#86' *) !)' %$?' @&' '#*' +"$'(' .' #,' 2$?')&,&$8"&,' +"$'(' '' ")& ,' $%&+' '' ")&' ##:+' #8' ")&' $':' #8' . ' '' 21,+1$'!&' #8' ")&' +$ (' !"' %$(&' $'(' 2$++&(' '' ")&' '")' &$,' #8' ")&' & . '' #8' D ' .' ' ")&' #1,")6' '" "1-&(' ' ' ' ' ' * ' ' $ ' ' ' '
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< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' "' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' ,1+"&&+' $'(' $'$.&,+' #8' $'?' $4 ' .+' $':6' (&+ ,#1+' #8' !$,,? ' .' ")&' 5,#4 + #'+' #8' ") +' !"' '"#' &9&!1" #'6' "#' 8,$%&' 1-&+' $'(' &.1-$" &'+' 8#,' ")$"' 51,2#+&' ' $'(' ")$"' $--' ")&' 5,#4 + #'+' #8' ")&' +$ (' !"6' %$(&' $'(' 2$++&(' '' ")&' '")' &$,' #8' ")&' & . '' #8' +' +$ (' -$"&' $>&+"?' D ' .' ' ")&' #1,")6' $+' ,&-$"&' "#' ")&' 8,$% ' .6' &' ,#-- ' .6' $'(' $-"&, ' .' 1-&+' #8' $4 ' .+' $':+6' $+' *&--' $+' "#' 3 +21"&+' @&"*&&'' ")&' +$ (' ,1+"&&+' #,' $'$.&,+' $'(' 3&2#+ "#,+' ")&,& '6' +)$--' @&' $22- !$@-&' "#' ")&' 1-&+' $'(' &.1-$" #'+' "#' @&' %$(&' 1'(&,' ")&' 2,#4 + #'+' #8' ") +' !"6' $'(' "#' ")&' 5$," &+' 21,!)$+ ' .' +1!)' ''1 " &+6' $+')&,& '' %&'" #'&(' $'(' ")$"' 8#,' ")&' 51,2#+&+' #8' ") +' !"' &4&,?' 5&,+#'' 21,!)$+ ' .' $'' ''1 "?' "),#1.)' ")&B' &(1%' #8' $' $4 ' .+' $':' +)$--' @&' !#'+ (&,&(' $+' $' 3&2#+ "#,' '' $' $4 ' .+' $':

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< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' '' $'?' 5$, +)' #,' 5-$!&' '' ")&' V ' "&(' D ' .(#%' *)&,&' '#' $4 ' .+' $':' +-&.$--?' &+"$@- +)&(' 1'(&,' ")&' 5,#4 + #'+' #8' "- &' +$ (' !"')&,& 'B@&8@,&' %&'" #'&(6' "' +)$--' $'(' %$?' @&' -$*81-' "#' $'(' 8#,' $'?' 5&,+#'+' '' +1!)' 5$, +)' #,' 2-$!&' "#' &+"$@- +)' $' #! &"?' 8#,' !$,,? ' .' ")&' 5,#4 + #'+' #8' ") +' !"' '"#' &9&!1" #'' ' 2,#4 (&(' ")$"' ")&' &!"#,' #,' < !$,' #,' ' +"&,' #8' ")&' 5$, +)6' #,' -(&,' 8#,' ")&' %&' @& ' .6' #,' $' ,&+ (&'" R1+" !&' #8' ")&' 5&$!&6' +)$--' @&' '&' #8' ")&' ,1+"&&+' #8' +1!)' #! &"?' $'(' 2,#4 (&(' $-+#6' ")$"' $--' ")&' 5,#4 + #'+' #8' ")&' +$ (' -$+"B%&'" #'&(' !"' $'(' #8' ") +' !"6' '' $+' 8$,' $+' ")&' +$%&' !$'' #,' %$?' @&' $22- !$@-&6' +)$--' $22-?' "#' ")&' ,1+"&&+' $'(' $'$.&,+' #8' $'?' +1!)' #! &"?' "#' @&' 8#,%&(' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' $'(' "#' ")&' 5$," &+' 21,!)$+ ' .' +1!)' ''1 " &+' $+')&,& '' %&'" #'&(6' $'(' "#' ")&' 1-&+' $'(' &.1-$" #'+' "#' @&' %$(&' 8#,' !$,,? ' .' ")&' +$%&' '"#' &888&!"

&DH I 3 /E!'
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< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' 8' $'?' 5&,+#'' $-,&$(?' $22# '"&(' 1'(&,' ")&' 5,#4 + #'+' #8' ")&' +$ (' !"' %$(&' '(' 2$++&(' '' ")&' '")' &$,' #8' ")&' & . '' #8' +' -$"&' $>&+"?' D ' .' ' ")&' #1,")6' #,' *)#' %$?')&,&$8"&,')&' $22# '"&(' "#' $'?' 88 !&' '' $' $4 ' .+' $':6' #,' '' $' #! &"?' &+"$@- +)&(' 1'(&,' ") +' !"6' $'(' @& ' .' &'",1+"&(' * ")' ")&' :&&2 ' .' #8' ")&' !!#1'"+6' #,')$4 ' .' '') +' $'(+' #,' 5#++&++ #'6' @?' 4 ,"1&' #8') +' +$ (' 88 !&' #,' %2-#?%&'"6' $'?' #' &+' #,' 88&!"+' @&-#' . ' .' "#' ' H ' $4 ' .+' $':' #,' #! &"?6' #,' $'?' 3&&(+' #,' &!1, " &+' ,&-$" ' . 8#' ")&' +$%&6' +)$--' (&6' #,' @&!#%&' $' $':,12"' #,' '+#-4&'"6' #,

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)$4&' $'?' 9&!1" #'' #,' ""$!)%&#'' #,'#")&,'5,#!&++' ++1&(' $.$ '+'') +' $'(+6' H##(+6')$""&-+6' #,' 88&!"+6' #,'%$:&' $'?' ++ .'%&''' ")&,&#8' 8#,' ")&' &'&8 '' #8') +' ,&("#,+6') +' 9&!1"#,+6' (% ' +",$"#,+6' #,' ++ .'&&+6' #,' #")&,'5&,+#'+')$4 '.'-&.$-' .)"6' #,' ")&')&, 88' #,' #")&,' 88 !&,' &9&!1" '.' +1!)' 5,#!&++6' +)$--6' * ") '' #,"?' 3$7+'$8"&,' 3&%$'(' %$(&' @?' *#' #8' ")&' ,1+"&&+' #8' ")&' +$ (' $4 '.+' $':' #,' #! &"?' $+' $8#,&+$ (6' (&- 4&,' $'(' 2$?' #4&,$--' #' &+' $'(' #")&,') '.+' @&-#'.'.' "#' +1!)' $4 '.+' $':' #,' #! &"?' "#' +1!)' 5&,+#'' $+' ")&' +$ (' ,1+"&&+' +)$--' $22# '"6' $'(' +)$--' 2$?' #1'' #8' ")&' +"$"&+6' ++&"+6' #,' 88&!"+' #8' +1!)' 5&,+#'' $--' 1%+' #8' #'&?' ,&%$ ' '.' (1&' *) !)' +1!)' 5&,+#'' ,&!& 4&(' @?' 4 ,"1&' #8' @ +' +$ (' 88 !&' #,' %2-#?%&'"6' @&8#,&' $'?' #")&,' #8') +' 3&@"+' $,&' 2$ (' #,' +$" +8 &(6' #,' @&8#,&' ")&' #'&?' (,&!"&(' "#' @&' -&4 &(' @?' +1!)' 5,#!&++' $+' $8#,&+$ (' +' 2$ (' #4&,' "#' ")&' 5$,"?' ++1 '.' +1!)' 5,#!&++' ' $'(' $--' +1!)' ++&"+6' $'(+_' H##(+6')$""&-+6' +"$"&+6' $'(' 88&!"+' +)$--' @&' @#1'(' "#' ")&' 5$?%&'' $'(' 3 +!)$,.&' ")&,&#8' $!!#,('.-?6

' '(' @&' '' 81,")&,' &'$!"&(')$'' 8,#%' 1'(' $8"&,' ")&' *&'N' " &")' 3$?' #8' 9 *" ' '' ")&' &$,' #8' #1,' #,(' '&' ")#1+$'(' & .)'')1'(,&(' $'(' ") ,"?B"),&&' +#' %1!)' #8' ")&' +$ (' !"6' %$(&' $'(' 2$++&(' '' ")&' '")' &$,' #8' ")&' & .'' #8' D '.' ' ")&' #1,")6' $+' ,&-$"&+' "#' 3&2#+ "#,+' * ")(,$* '.' ")&,' 3&2#+ "+6' $'(' ,&B(&2#+ " '.'")&' +$%&6' 2,#4 (&(' ")&' 1%' '4&+"&(' (#&+' '#'' '' $'?' '&' &$,' &9!&&(') ,"?' 5#1'(+' $((" #'$-' 5, '! 2$-' #'&?6' +)$--' @&' $'(' ")&' +$%&' +')&,&@?' ,&2&$-&(' ' $'(' ")$'' '#' #'&?6' *)&")&,' +1!)' #'&?' +)$--')$4&' @&&'' 2,&4 #1+-?' * ")(,$*'' 8,#%' +1!)' $4 '.+' $':+' #,' '#"6' +)$--' $'' $'?' %&' @&' ,&!& 4&(' @?' ")&' ,1+"&&+' #,' $'$.&,+' 8,#%' $'?' 3&2#+ "#,' *) !)' +)$--') ,' $'?' '&' &$,'('.' #'' ")&' *&'" &")' 3$?' #8' 9 *" ' &9!&&(' ")&' 1%' #8') ,"?' 5#1'(+

' O IH'' .' ' ' ' H' ' 2E' /D723DE' 3 ' Z 3"G/2Z #4' DC E 3E2#G' /D GDCCE 3 #4' /DCD27DG') ' B #D6' N D&HDDG #4' U ' 3 ' OD' GDC E 3DG' #' 2#6' ' #D - D2/

B' '(' @&' '' 81,")&,' &'$!"&(')$'' 8' ")&' $''1$-' "$"&%&'"+' (,&!"&(' @?' ")&' +$ (' !'' 2$++&(' '' ")&' '")' &$,' #8' +-$"&' $>&+"?' D '.' ' ")&' #1,")' "#' @&' 2,&2$,&(' $'(' ",$'+% ""&(' @?' ")&' ,1+"&&+' #8' $' $4 '.+' $':' +)$--' '#'' @&' 2,&2$,&(' $'(' ",$'+% ""&(' "#' ")&' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@'' * ") '' ")&' %&' - % "&(' @?' ")&' +$ (' !"6' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' #,' 8#,' ")&' #%2",#--&,' H&'&,$-' #,' ++ +"$''' #%2N ",#--&,' $!" '.' 1'(&,' ")&' +$ (' #%% ++ #'&,+6' $'(' ")&?' $'(')&' +' $'(' $,&')&,&@?' +&4&,$--?' ,&C1 ,&(6' 8#,")* ") "#' 21@- +)' '' ")&' K ' $'(' $-+#' '' $'?' &*+2$2&,+' 21@- +)&(' '' ")&' #1'"?' '' *) !)' ")&' $4 '.+' $':' +' &+"$@- +)&(6' ")&' $%&' #8' &4&,?' +1!)' $4 '.+' $':' +#' '&.-&!" '.' #,' %$: '.' (&8$1-'' '' ",$'+% "" '.' +1!)' $''1$-' "$"&%&'"' $+' $8#,&+$ (6' '' +1!)' #,%' $'(' E#,(+6' 8#,' ")&' '8#,N %$" #'' #8' ")&' 3&2#+ "#,+6' $'(' 1'(&,' +1!)' &.1-$" #'+6' $+' ")&' +$ (' #%% ++ #'&,+' #,' ")&' #%2",#--&,' H&'&,$-' #,' ++ +"$''' #%2N ",#--&,' +)$--' 8,#%' %&' "#' %&' ") '.' 8"

' 2##!27' =D3!/#E' 2/D' # 3' O2GD' C!/E!2#3' 3 ' !' 'Q' !/' E' T')2OD' .' 2F #4E' 2#]' 3 ' OD' C!O7 E"DG' #' 2dD33D

-' '(' @&' '' 81,")&,' &'$!"&(')$'' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@"6' #,' ")&' #%2",#--&,' H&'&,$-' #,' ++ +"$''' #%2",#--&,' $!" '.' 1'(&,' ")&' +$ (' #%% ++ #'&,+6' 8' ")&?' #,')&' +)$--' ") '.' 8"6' "#' ,&C1 ,&' 8,#%' %&' "#' %&' #8' $'(' 8,#%' ")&' ,1+"&&+' #,' $'$.&,+' #8' $'?' $4 '.+' $':' $'(' $"' (&"$-&(' "$"&%&''' #8' $--' ")&' 92&'!&+' *)$"&4&,' '!1,,&(' @?' ")&' +$ (' ,1+"&&+

323DOD#3' &CD#HDE' #`E3DDE /' B2#24D/E!'

B ʿ ʿ (2Cʿ

,1+"&&+ʿ #,ʿ $'$.&,+ʿ 'ʿ ")&ʿ $'$.&%&'"ʿ #,ʿ #")&,* +&ʿ #8ʿ ")&ʿ +$ (ʿ
$4 '.+ʿ $':

@"D#ʿ B #D6ʿ Eʿ #ʿ 3"Dʿ >2#GEʿ .ʿ2ʿ /D2E I /D/!ʿ" Eʿ (D/3 . H23Dʿ3 ʿ 2HH O C2#6ʿ 3"Dʿ 323D^ O D#3

ʿ '(ʿ@&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ *)&'&4&,ʿ "ʿ +)$--ʿ $22&$,ʿ 'ʿ $'?ʿ $''1$-ʿ 7 "$"&%&'"ʿ ")$"ʿ $'?ʿ 1%ʿ #8ʿ #'&?B#8ʿ #,ʿ @&-#'. '.ʿ "#ʿ $ʿ $4 '.+ʿ $':ʿ +ʿ 'ʿ ")&ʿ $'(+ʿ #8ʿ $'?ʿ ,&$+1,&,ʿ #,ʿ #")&,ʿ 5&,+#'6ʿ ")&ʿ +$ (ʿ $''1$-ʿ "$"&%&'"ʿ +)$--ʿ @&ʿ $!!#%2$' &(ʿ * ")ʿ $ʿ &," 8 !$"&6ʿ + .'&(ʿ)?ʿ +1!)ʿ ,&$+1,&,ʿ #,ʿ #")&,ʿ 5&,+#'6ʿ ")$"ʿ ")&ʿ 1%ʿ #8ʿ #'&?ʿ ")&,& 'ʿ %&'"#'&(ʿ +ʿ 'ʿ) +ʿ 5#++&++#'

=D D#/ 7^ O D#3ʿ .ʿ= I 7DEʿ # 3ʿ #DHDE ʿ E2/6

ʿ 5,#4 (&(ʿ $-*$?+6ʿ $'(ʿ "ʿ +ʿ)&,&@?ʿ &'$!"&(6ʿ)$"ʿ '#") '.ʿ !#'"$ '&(ʿ 'ʿ") +ʿ !"ʿ ,&+2&!" '.ʿ $4 '.+ʿ $':+ʿ+)$--ʿ ,&'(&,ʿ "ʿ '&!&++$,?ʿ "$ʿ)$4&ʿ ")&ʿ 1-&+ʿ $'(ʿ &.1-$"#'+ʿ #8ʿ $4 '.+ʿ $':+ʿ $.$ 'ʿ &',#--&(6ʿ 8ʿ ")&ʿ +$%&ʿ)$4&ʿ @&&'ʿ @&8#,&ʿ &',#--&(ʿ $!!#,('.ʿ "#ʿ $*

P &ʿ ʿP5ʿ 2Eʿ 2 O D#GDGʿ O6ʿ 3" Eʿ H3! ʿ D573DCGDGʿ 3 ʿ e5/ ID/# DFJʿ ʿ ʿ

< ʿ '(ʿ@&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ")&ʿ 5,#4 + #'+ʿ #8ʿ ")&ʿ $(ʿ !"ʿ %$(&ʿ $'(ʿ 2$++&(ʿ 'ʿ ")&ʿ '")ʿ &$,ʿ #8ʿ +ʿ -$"&ʿ $>&+"?ʿ D '.ʿ ʿ")&ʿ #1,")6ʿ $'(ʿ #8ʿ") +ʿ !"6ʿ +)$--ʿ &9"&'(ʿ "#ʿ $-8ʿ $4 '.+ʿ $':+ʿ &+"$@- +)&(ʿ #,ʿ)&,&$8"&,ʿ "#ʿ @&ʿ &+"$@- +)&(ʿ 'ʿ")&ʿ +-$'(+ʿ #8ʿ ʿ
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G O 3Eʿ .ʿ3"Dʿ H3

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$'(' 21@- +)&(' @?' ")&' 1")#,' ")&,&# '#,') +' ++ . '&&6' #,' *) !)')&,&B' " E' +/ CD/36'
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$8"&,' +)$--' @&' !#%2#+&(6' $'(' '#" 2, '"&(' #,' 21@- +)&(' @?' ")&' 1")#,' ")&,&#8' #,') +' ++ .'&&6' #,' ")&' ++ .'&&' #8' +1!)' 1")#,6' +)$--')$4&' $+') +' #* '' 5,#2&,"?' ")&' +#-&' @&,"?' #8' ,&2,&+&'" '.6' #,' !$1+ '.' "#' @&' ,&2,&+&'"&(6' $" $'?' 5-$!&' #,' 5-$!&+' #8' 3,$%$" !' '"&,"$ '%&'" *)$"+#&4&,6' 'A$7' 5$," #8' ")&' V' "&(' D '.(#%' #8' ' ('$'(' ' ' ")&' +-&+' #8' '& ' $'(' ' #,' '' $'?' 5$," #8' ")&' (' 3#% ' #'+6' $'?' +1!)' 5,#(1!" #'' $+' $8#,&+$ (6' '#" 2, '"&(' $'(' 21@- +)&(' @?' ")&' 1")#,' ")&,&#8' #,') +' ++ .'&&6' $'(' +)$--' @&' (&&%&(' $'(' "$:&'' "#' @&' ")&' 5,#2, &"#,' ")&,&#8 ' $'(' ")$" ")&' 1")#,' #8' $'?' +1!)' 5,#(1!" #'6' 2, '"&(' $'(' 21@- +)&(' * ") ' &'' &$,+' @&8#,&' ")&' 2$++ '.' #8' ") +' !" @?' ")&' 1")#,' ")&,&#8' #,') +' ++ .'&&6' #,' *) !)' +)$--')&,&$8"&,' @&' +#' 2, '"&(' $'(' 21@- +)&(6' #,' ")&' ++ .'&&' #8' +1()' 1")#,6' +)$--6' 8,#%' ")&' %&' #8' 2$++ '.' ") +' !"6' #,' 8,#%' ")&' %&' #8' +1!)' 51@- !$" #'' ,&+2&!" 4&-?6' 1'" -' ")&' '(' #8' *&'"?B& .)" &$,+' 8,#%' ")&' 3$?' #8' +1!)' 8 ,+" 51@- !$" #'' #8' ")&' +$%&6' $'(' $-+#6' 8' ")&' 1")#,' #,' 1")#,+6' #,' ")&' 1,4 4#,' #8' ")&' 1")#,+6' +)$--' @&' - 4 '.' $" ")&' '(' #8' ")$" 5&, #(6' (1, '.' ")&' &+ (1&' #8') +' '$"1,$-' 8&6')$4&' $+') +' #* '' 5,#2&,"?' ")&' +#-&' @&,"?' #8' ,&2,&+&'" '.6' #,' !$1+ '.' "#' @&' ,&2,&+&'"&(6' ")&' +$%&' $" $'?' + !)' 5-$&&' #8' 3,$%$" !' '"&,"$ '%&'" $+' $8#,&+$ (6' $'(' +)$--' @&' (&&%&(' $'(' "$:&'' "#' @&' ")&' 5,#2, &"#,' ")&,&#8 ' 5,#4 (&(' '&4&,")&N -&++6' ")$" '#") '.' '' ") +' !" !#'"$ '&(' +)$--' 2,&>1(!&6' $-"&,6' #,' $88&!" ")&' .)" #,' 1")#, "?' #8' $'?' 5&,+#'' "#' ,&2,&+&'" #,' !$1+&' "#' @&' ,&2,&+&'"&(6' $" $'?' 5-$!&' #,' 5-$!&+' #8' 3,$%$" !' '"&,"$ '%&'" *)$"+#&4&,6' $'?' +1!)' 5,#(1!" #'' $+' $8#,&+$ (6' '' $--' $+&+' '' *) !)' ")&B 1")#,' ")&,&,8' #,') +' ++ .'&&' +)$--6' 2,&4 #1+-?' "#' ")&' 2$++ '.' #8' ") +' !"6')$4&' .4&'') +' #'+&'" "#' #,' $1")#, L&(' +1!)' &2,&+&'N "$" #'6' @1" ")$" +1!)' +#-&' @&,"?' #8' ")&' 1")#,' #,') +' ++ .'&&' +)$--' @&' +1@>&!" "#' +1!)' .)" #,' 1")#, "?

+/ F E '2E' 3 ' (2EDE' Z"D/D' C/DF IE' 3 ' 3"D' C2EE #4' .' 3" E' H36' 2' (#ED#3' "2E' ODD#' 4 FD#

+D#2736' #' CD/E #E' CD/^ . /0 #4' + DHDE' H #' ' ! '3/2/6' 3 '3" E' H3

' ' '(' @&' " 81,")&,' &'$!"&(')$" 8' $'?' 5&,+#'' +)$--6' (1, '.' ")&' #'" '1$'!&' #8' +1!)' +#-&' @&,"?' $+' $8#,&+$ (6' !#'",$,?' "#' ")&' '"&'" #8' ") +' !"6' #,' .)" #8' ")&' 1")#,' #,' @ +' ++ .'&&6' ,&2,&+&'"6' #,' !$1+&' "#' @&' ,&2,&+&'"&(6' * ")#1" ")&' #'+&'' '' E, "'.' #8' ")&' 1")#,' #,' #")&,' 5,#2, &"#,' 8 ,+")$(' $'(' #@"$ '&(6' $" $'?' 5-$!&' #8' 3,$%$" !' '"&,"$ '%&'" * ") '' ")&' % "+' $8#,&+$ (6' $'?' +1!)' 5,#N (1!" #'' $+' $8#,&+$ (6' #,' $'?' 5$," ")&,&#86' &4&,?' +1!)' 88&'(&,' +)$--' @&' - $@-&' 8#,' &$!)' $'(' &4&,?' +1!)' &2,&+&'"$" #'' "#' ")&' 5$?%&'" #8' $'' %#1'" '#" -&++' ")$'' #,"?') -- '.+6' #,' "#' ")&' 81--' %#1'" #8' ")&' &'&8" #,' (4$'"$.&' $, + '.' 8,#%' +1!)' &2,&+&'"$" #'6' #,' ")&' '>1,?' #,' #++' +1+"$ '&(' @?' ")&' 5-$ '" 88' ")&,&8,#%6' *) !)&4&,' +)$--' @&' ")&' .,&$"&,' 3$%$.&+6' "#' ")&' 1")#,' #,' #")&,' 5,#2, &"#,' #8' +1!)' 5,#(1!" #'' +#' ,&2,&+&'"&(' !#'",$,?' "#' ")&' ",1&' '"&'" $'(' &$' '.' #8' ") +' "#' @&' ,&!#4&,&(6' "#.&")&,' * ")' 3#1@-&' #++' #8' 1 "6' @?' +1!)' 1")#,' #,' #")&,' 5,#2, &"#,+6' '' $'?' #1,")$4 '.' R1, +(!" #'' M '' +1!)' $+7' '' ")$" 5$," #8' ")&' +$ (' V' "&(' D '.(#%' #,' #8' ")&' (' 3#% ' #'+' '' *) !)' ")&' 88&'!&' +)$--' @&' !#%% ""&(' $'(' '' &4&,?' +1!)' 5,#!&&('.' *)&,&' ")&' +#-&' @&,"?' #8' +1!)' 1")#,' #,') +' ++ .'&&' $+' $8#,&+$ (' +)$--' @&' +1@>&!" "#' +1!)' .)" #,' 1")#, "?' $+' $8#,&+$ (6' '' +)$--' @&' 188 ! &'" 8#,' ")&' 5-$ '" 8- '' "#' +"$"&' ")$")&')$+' +1!)' +#-&' @&,"?6' * ")#1" +"$" '.' ")&' +$%&' "#' @&' +1@>&!" "#' +1!)' .)" #,' 1")#, "?6' #,' #")&,* +&' %&'" #' '.' ")&' +$%&

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3] 5, '"&(ʿ @?ʿ ʿ ʿ $'(ʿ ʿ ʿ
+/ #3D/E 3 ʿ 3"Dʿ ? #4aEʿ O E3ʿ &HD77D#3ʿ B 25DE36ʿ Q

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77 H3 3 ' /DCD27 3"D * I3 DE! 77 Z2#HDE! 2#G
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@ ' '' +' &92&(&''")$'")&' 31" &+6 --#*$'!&+6 $'('
3,$*@$!:+' '#*' 2$?$@-&' '' ,&+2&!" #8' $--' #$2' %$(&' ''
' (' $'(' #8' #$2' @,#1.)" 8,#%' ' '"#'
' (' +)#1-(' @&' ,&2&$-&(6 $'('0")$" #")&,' 31" &+' +)#1-(' @&'
%2#+&(' $'(' #")&,' 3,$*@$!:+' .,$'"&(' '' - &1' ")&,&#8] &' "")&,&B' *I3 DE' 2#G'
8#,&' &'$!"&(' @?' ")&' D '.;+' %#+" 9!&--&'" $>&+"?6 @?' $'(' * ")' ")&' 77 Z2#HDE'
(4 !&' $'(' #'+&'" #8' ")&' #,(+' 2 , "1$-' $'(' &%2#,$-6 $'(' .' &H ED' #'
#%%#'+6 '' ") +' 2,&+&'" 5$,- $%&'" $++&%@-&(6 $'('@?' ")&' 1")#B'
, "?'#8'")&'+$%&')$" 8,#%' $'('$8"&,'")&') ,"?B8 ,+" 3$?' #8' ' '&' / 32 #' /'
7")#1+$'('& .)")1'(,&('$'('") ,"?B"),&&' $--' $'(' + '.1-$,' ")&' 31" &+' O/ I4"3'./ O'
$'(' --#*$'!&+' #8' 9! +&' '#*' 2$?$@-&' #'' #$2' %$(&' '' ' (' /D72#G' 3 '
$'(' #'' #$2' @,#1.)" 8,#%' ' '"#' ' (' &9!&2" $+' +1!)' $+;A7&&,'B7AA
31" &+' $,&')&,& 'B$8"&,' !#'" '1&(' #'' #$2' @,#1.)" 8,#%' ' $'(' 2.3D/' H #'
$--' 3,$*@$!:+' #8' 9! +&' #'' #$2' &92#,"&(' "#' #,& .'' 5$,"+6 #,' ,&B' 3 ##DG!'
%#4&('8,#%' ' (' '"#' ' +)$--' !&$+&' $'(' (&"&,% '&'
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+$ (' 31" &+' *) !)' %$?')$4&' @&&'' !)$,.&(' #'' #,' @&8#,&' ")&' +$ (' =DH FD/6' .'
) ,"?B8 ,+" 3$?' #8' ' '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B' *I3 DE!' H'
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+)$--' @&' E##-6' #,' '' ")&' 8 ' +) '.'#8'")&' +$ (' $'18$!"1,&+6' #,' 2,&N
2$, '.'")&' E##-' 8#,' ")&' +$%&6' #,' '' ")&' *) "&' '.'#8' '&*' '&'' ''
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8,#%' -$9' #,' #""#'' 8#,' $-&6' #,' '' ")&' 5,#!&++' #8'"),#* '.6' 2, '" '.6'
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@&8# &'")&' +$ (') ,"?B8 ,+'' 3$?' #8' , ' '&'")#1+$'('& .)'')1'(,&('
$'(' ") ,"?B"),&&6' +)$--' $'(' %$?' @&' +1&(' 8#,6' -&4 &(6' ,&!#4&,&(6' $'('
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' '(' @&' '' 81,")&,' &'$!"&(')$'' 8,#%' $'(' $8"&,' ")&' +$ (
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1!!&++@,+6' ")&' +&4&,$-' $"&+' $'(' 31" &+' #8' 9! +&')&,& 'B$8"&,'
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E& .)'' 4# ,(12# +' #8' $--' $,(' #$2' *) !)' +)$--' @&' @,#1.)'' 8,#%'
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*) !)' +)$--' @&' %$(&' '' '(' #,' *) !)' +)$--' @&' @,#1.)'' 8,#%'
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")&,&#8' ,&+2&!" 4&-?6' $' 31"?' #8' '&' 5&''?' $'('")$'' 8,#%' $'(' $8"&,'
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#8' $--' $,(' #$2' 8#,' *) !)'")&' 31"?' '' ,&+2&!'' ")&,&#8' +)$--')$4&' @&&''
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"#' 5#,& .'' 5$,"+6' #,' *) !)' +)$--' @&' +) 22&(' $+' "#,&+' #8' $'?' <&++&-'
&'" "-&(' "#' +) 2' H##(+' $+' "#,&+' 31"?B8,&&6' #,' *) !)' +)$--' @&' ,&N
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$-82&''?' ' 8#,' &4&,?' 5#1'(' E& .)'' #8' $--' #8'' #$2' 4) !)' +)$--' @&'
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")$'' 8,#%' $'(' $8"&,' ")&' +$ (') ,"?B8 ,+'' 3$?' #8' ' '&' ")#1+$'('
& .)'')1'(,&(' $'(' ") ,-?B"),&&6' $'(' 1'"-' ")&' '(' #8'")&' &++ #'' #8'
5$,- $%&''' '&9'' $8"&,' ")&') ,"?B8 ,+'' 3$?' #8' ' '&' ")#1+$'('
& .)'')1'(,&('$'('") ,"?78 4&6' ")&,&' +)$--' @&' .,$'"&(' $'(' $--#*&(6' #''
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%$: '.' #8' $'?' -#")+6' &,.&+6' D& ;+&?+6' $ L&6' "#!: '.+6' #,' ")&,'
$'18&!"1,&+' #8')&&2'#,' $%@+' E##-' #'-?6' #,' $'18$!"#&+' *)&,&#8'
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1'(&,ʽ ")&ʽ &.1:" #'+ʽ $'(ʽ +)$--ʽ @&ʽ !)$,.&(ʽ * ")ʽ ")&ʽ 31" &+ʽ '#*ʽ
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--#*$'!&ʽ #8ʽ '&ʽ 5#1'(ʽ 'ʽ &4&,?ʽ &'ʽ 5#1'(+ʽ #8ʽ $,(ʽ #$26ʽ #,ʽ $'?ʽ
#")&,ʽ --#*$'!&6ʽ +)$--ʽ @&ʽ %$(&ʽ #,ʽ $--#*&(ʽ $'(ʽ ")&ʽ 31" &+ʽ #!)$,.&(ʽ
+)$--ʽ @&ʽ 2$?$@-&ʽ $'(ʽ 2$ (ʽ 'ʽ ")&ʽ 1+1$-ʽ #1,+&ʽ #8ʽ 5$?%&'" $!!#,('.ʽ
"#ʽ ")&ʽ 3$*+ʽ '#*ʽ 'ʽ 8#,!&ʽ ,&-$" '.ʽ "#ʽ ")&ʽ &4&'1&ʽ #8ʽ 9! +&ʽ ʽ $'(ʽ $+ʽ
+##'ʽ $+ʽ +1!)ʽ #$2ʽ +)$--ʽ @&ʽ !1" 126ʽ $'(ʽ $"ʽ !!#1'" @&&'ʽ "$:&'ʽ #8ʽ ")&ʽ
+$%&6ʽ $--ʽ +1!)ʽ #$2ʽ +)$--ʽ @&ʽ 8#,")* ")ʽ (&2#+ "&(ʽ $'(ʽ +"#,&(ʽ 'ʽ ")&ʽ
+&2$,$"&ʽ ##%6ʽ &--$,6ʽ #,ʽ "#,&ʽ $22,#4&(ʽ #8ʽ @?ʽ ")&ʽ #%% ++ #'&,+ʽ
#8ʽ 9! +&ʽ ,ʽ ")&,ʽ 88 !&,+6ʽ 1'(&,ʽ ")&ʽ #!:+ʽ $'(ʽ D&?+ʽ #8ʽ ")&ʽ 88 !&,+ʽ
#8ʽ 9! +&6ʽ $'(ʽ #")&,* +&ʽ +&!1,&(ʽ 'ʽ +1!)ʽ $''&,ʽ $+ʽ ")&ʽ #%% ++Bʽ
K+ #'&,+ʽ #8ʽ 9! +&ʽ +)$--ʽ (,&!"ʽ $'(ʽ $+ʽ #8"&'ʽ $+ʽ $'?ʽ #")&,ʽ #$2ʽ +)7-ʽ
@&ʽ %$(&ʽ "#ʽ @&ʽ +"#,&(ʽ $'(ʽ +&!1,&(6ʽ ")&ʽ 88 !&,ʽ #8ʽ 9! +&ʽ +)$--ʽ "$:&ʽ
$'ʽ !!#1'" ")&,&#86ʽ $'(ʽ #8ʽ $--ʽ #$2ʽ *) !)ʽ +)$--ʽ)$4&ʽ @&&'ʽ 2,&4 #1+-?
+"#,&(ʽ $'(ʽ $--ʽ +1!)ʽ #$2ʽ +)$--ʽ @&ʽ :&2" +#ʽ +"#,&(ʽ $'(ʽ +&!1,&(6ʽ $'(ʽ
+)$--ʽ '#" @&ʽ +#-(ʽ #,ʽ +&'"ʽ '"#ʽ #'+1%2" #'6ʽ #,ʽ $'?ʽ 5$," (&,&#8ʽ @&ʽ
(&-4&,&(ʽ "#ʽ ")&ʽ $:&,ʽ ")&,&#86ʽ 1'" -ʽ #'ʽ #,ʽ $8"&,ʽ ")&ʽ ,+" 3$?ʽ #8ʽ
& ʽ 2&ʽ ")#1+$'(ʽ & .)")1'(,&(ʽ $'(ʽ ") ,"?B"),&7ʽ #'ʽ *)!)ʽ 3$?ʽ
")&ʽ 2,#2&,ʽ 88 !&,+ʽ #8ʽ 9! +&ʽ +)$--ʽ "$:&ʽ $'ʽ !!#1'" #8ʽ $--ʽ ")&ʽ +$(ʽ
#$2ʽ *)!)ʽ +)$--ʽ)$4&ʽ @&&'ʽ +#ʽ !-&$'+&(ʽ 1'(&,ʽ +1!)ʽ #" !&6ʽ #,ʽ +"#,&(ʽ
$'(ʽ +&!1,&(ʽ ʽ $'(ʽ 8ʽ 12#'ʽ +1!)ʽ !!#1'" ")&ʽ *)#-&ʽ T1$'" "?ʽ #8ʽ #$2ʽ
+)$--ʽ @&ʽ 8#1'(ʽ 'ʽ ")&ʽ "#!:ʽ #8ʽ ")&ʽ $:&,ʽ *)#ʽ +)$--ʽ)$4&ʽ %$(&ʽ ")&ʽ
+$%&6ʽ +"#,&(ʽ $'(ʽ +&!1,&(ʽ $+ʽ $8#,&+$ (6ʽ $'(ʽ ")&ʽ 88 !&,+ʽ #8ʽ 9! +&ʽ +)$--
ʽ @&ʽ +$" +8 &(ʽ ")$" 'ʽ +ʽ ")&ʽ +$%&ʽ #$2ʽ *) !)ʽ *$+ʽ +#ʽ %$(&6ʽ $'(ʽ ")$" '#
5$," ")&,&#8ʽ)$+ʽ @&&'ʽ +&'"ʽ '"#ʽ #'+1%2" #'6ʽ #,ʽ $'?ʽ (&V"#V %$(&ʽ
")&,&#86ʽ #,ʽ $'?ʽ -"&,$" #'ʽ ")&,&ʽ '6ʽ ")&ʽ #%% ++ #'&,+ʽ #8ʽ 9! +&ʽ $,&ʽ
)&,&@?ʽ $1")#, L&(ʽ $'(ʽ &%2#*&,&(ʽ "#ʽ $--#*ʽ "#ʽ ")&ʽ ,&+2&!" 4&ʽ $:&,+ʽ
#8ʽ +1!)ʽ #$26ʽ 8,#%ʽ ")&ʽ)$,.&+ʽ #8ʽ 31"?ʽ ")&,&#'6ʽ ")&ʽ 1%ʽ #8ʽ '&ʽ
5&''?ʽ $-82&''?ʽ #'ʽ &4&,?ʽ 5#1'(ʽ #8ʽ $,(ʽ #$26ʽ $'(ʽ),&&ʽ $,N
") '.+ʽ #'ʽ &4&,?ʽ 5#1'(ʽ #8ʽ '8ʽ #$26ʽ ")&ʽ %#1'" #8ʽ *) !)ʽ --#*$'!&ʽ
+)$--ʽ @&ʽ 2-$!&(ʽ "#ʽ ")&ʽ ,&(" #8ʽ &$!)ʽ ,&+2&!" 4&ʽ $:&,ʽ #8ʽ +1!)ʽ
#$26ʽ $'(6+)$--ʽ @&ʽ $--#*&(ʽ "#ʽ) %ʽ #'ʽ ")&ʽ 5$?%&'" #8ʽ ")&ʽ '&9" $'(ʽ
$'?ʽ +1@+&C1&'" &"1,'ʽ #,ʽ)$,.&ʽ #8ʽ 31" &+ʽ *) !)ʽ +)$--ʽ @&!#%&ʽ 2$?N
$@-&ʽ $8"&,ʽ ")&ʽ +$(ʽ ,+" 3$?ʽ #8ʽ & ʽ 1'" -ʽ 1!)ʽ ,&(" 7)$--ʽ @&6ʽ
&9)$1+"&(

B ʿ ʿ (2C Tʿ

ʿ '(ʿ@&ʿ "ʿ81,")&,ʿ&'$!"&(6ʿ)$"ʿ 8ʿ$'?ʿ #$2ʿ *) !)ʿ+)$--ʿ@&ʿ %$(&ʿ1'(&,ʿ")&ʿ &.1-$" #'+ʿ $8#,&+$ (6ʿ $+ʿ '#"ʿ "#ʿ @&ʿ +&'"ʿ '"#ʿ #'N +1%2" #'ʿ 1'" -ʿ $8"&,ʿ ")&ʿ I$(ʿ) ,"?B8 ,+"ʿ 3$?ʿ#8ʿ ʿ '&ʿ")#1+$'(ʿ & .)"ʿ)1'(,&(ʿ$'(ʿ") ,"?B"),&&6ʿ+)$--ʿ'#"ʿ$"ʿ$'?ʿ %&ʿ2,&4 #1+ʿ")&,&"#ʿ @&ʿ +#ʿ +"#,&(ʿ $'(ʿ +&!1,&(ʿ 'ʿ+1!)ʿ +&2$,$"&ʿ$'(ʿ+&&'6,&; ##%6ʿ &--$,6ʿ #,ʿ "#,&ʿ $22,#4&(ʿ;#8ʿ @?ʿ ")&ʿ #%% ++ #'&,+ʿ #8ʿ 9! +&ʿ #,ʿ ")&,ʿ 88 !&,+ʿ ʿ #,ʿ 8ʿ$'?ʿ+1!)ʿ $:&,ʿ #8ʿ #$2ʿ+)$--ʿ#2&'ʿ#,ʿ2,#!1,&ʿ"#ʿ@&ʿ #2&'&(ʿ$'?ʿ+1!)ʿ ##%6ʿ &--$,6ʿ#,ʿ "#,&6ʿ#,ʿ '>1,&ʿ$'?ʿ#8ʿ")&ʿ #!:+6 D&?+6ʿ#,ʿ $+"&' '.+ʿ")&,&#86ʿ#,ʿ ,&%#4&6ʿ #,ʿ !$1+&ʿ #,ʿ 2,#!1,&ʿ"#ʿ @&ʿ ,&%#4&(6ʿ $'?ʿ #$2ʿ8,#%ʿ #,ʿ #1"ʿ #8ʿ")&ʿ +$%&6ʿ #,ʿ +)$--ʿ+&'(ʿ#1"ʿ #,ʿ (&- 4&,ʿ$'?ʿ+1!)ʿ #$2ʿ +#ʿ %$(&ʿ"#ʿ@&ʿ+"#,&(6ʿ#,ʿ 8ʿ#'ʿ")&ʿ ,+"ʿ 3$?ʿ #8ʿ& ʿ#,ʿ$"ʿ$'?ʿ %&ʿ2,&4 #1+ʿ")&,&"#6ʿ")&ʿ 88 !&,+ʿ#8ʿ 9! +&ʿ+)$--ʿ '#"ʿ8 '(ʿ$--ʿ+1!)ʿ #$2ʿ+#ʿ+"#,&(ʿ$'(ʿ+&!1,&(ʿ$'(ʿ1'$-"&,&(6ʿ#,ʿ 8ʿ$'?ʿ +1!)ʿ $:&,ʿ #8ʿ #$7ʿ +)$--ʿ1+&ʿ #,ʿ2,$!" +&ʿ $'?ʿ ,"ʿ#,ʿ3&4 !&ʿ"#ʿ(&N !&4&ʿ$'?ʿ 88 !&,ʿ#87 9! +&ʿ 'ʿ"$: '.ʿ$'ʿ !!#1'ʿ#8ʿ+1!)ʿ #$26ʿ#,ʿ#8ʿ $'?ʿ5$,"ʿ #8ʿ) +ʿ "#!:6U#,ʿ"#ʿ ,&%#4&ʿ $'? 5$,"ʿ #8ʿ+1!)ʿ #$26ʿ #,ʿ"#ʿ &4$(&ʿ$'?ʿ5$,"ʿ #8ʿ")&ʿ 31"?ʿ#'ʿ #$2ʿ * ")ʿ *) !)ʿ2,&4 #1+ʿ"#ʿ")&ʿ+$ (ʿK ,+"ʿ 3$?ʿ#8ʿ& * ʿ)&ʿ% .)"ʿ#,ʿ *#1-(ʿ@&ʿ!)$,.&$@-&6ʿ#,ʿ"#ʿ#@"$ ʿ$'?ʿ .,&$"&,ʿ --#*$'!&ʿ1'(&,ʿ")&ʿ &.1-$" #'+ʿ $8#,&+$ (ʿ")$'ʿ)&ʿ +)$--ʿ@&ʿ &'" "-&(ʿ"#6ʿ")&'ʿ$'(ʿ 'ʿ $'?ʿ+1!)ʿ $+&ʿ")&ʿ #$2ʿ $:&,ʿ+#ʿ #8 8&'(ʿ'.ʿ +)$--ʿ8#,8&"ʿ $--ʿ -$%6ʿ "#ʿ$'?ʿ+1!)ʿ --#*$'!&ʿ $+ʿ$8#,&+$ (6ʿ"#.&")&,ʿ * ")ʿ $'?ʿ5&'$-"?ʿ#,ʿ5&'$-" &+ʿ #,ʿ #,8& "1,&+ʿ *) !)ʿ)&ʿ %$?ʿ")&,&@?ʿ '!1,ʿ1'(&,ʿ$'?ʿ#8ʿ")&ʿ $ 4+ʿ#8ʿ 9! +&ʿ A

<ʿ '(ʿ@&ʿ "ʿ81,")&,ʿ&'$!"&(6ʿ)$"ʿ") +ʿ !"ʿ %$?ʿ@&ʿ $-"&,&(6ʿ ʿ o26ʿ@& $%&'(&(6ʿ#,ʿ,&2&$-&(ʿ@?ʿ$'?ʿ !"#,ʿ !"+ʿ"#ʿ@&ʿ2$++&(ʿ ʿ") +ʿ2,&+&'"ʿ &++ #'ʿ #8ʿ5$,- $%&'"

3] 5,'"&(ʿ06ʿ ʿ ʿ$'(ʿ ʿ ʿ
5, '"&,+ʿ"#ʿ")&ʿ D '.;+ʿ%#+"ʿ 9!&--&'"ʿ $>&+"?ʿ @A??,

.ʿ3"Dʿ C/D^ EH/ ODGʿ =D^ 41723 #Eʿ . /ʿ E3 / #4ʿ 2Cʿ 2/Dʿ #./ #4DGʿ IC #!3"D+2/ʿ 36ʿ "27ʿ 7 EDʿ 27ʿ (72 Oʿ 3ʿ 2#6ʿ 77 Z^ 2#HD!ʿ 2#Gʿ ODʿ E I O5DH3ʿ 3ʿ 3"Dʿ +D#273 DEʿ D& E3 #4ʿ I #GDDʿ 3"Dʿ &H EDʿ 2ZE

)) '' = '

(' ' + '

#' H3' . /' /DCD27 #4' +2/3' .' 2#' H3' .' 3"D' ZD#36'
E &3"' -D2/' .' ? #4' ' 3"D' " /GE' . /' OD33D/'
EDHI / #4' 3"D' * I3 DE' #' 32/H"!' 2#G' . /' C/DFD#3^
#4' A/2IGE' #' 3"D' E2G' * I3 DE' N' 2#G' . /' O2] #4'
3"D/' +/ FE #E' #' 7DI' 3"D/D .

[U3"' ! ' Q _

E ' @?' $'' !'' 2$++&(' '' ")&' * &'"?B+ 9")' &$,' #8' ")&' & .'' #8' +' -$"&' $>&+"?' D ' .' ' ")&') ,(6' 'B' "1-&(' ' ' '' ' ' ' ' ' ' ' 1 ' ' ' ' ' ' '' *$+' $%#' .+'' #")&,' ") '.+' T' ' 'HV' &'$!"&(6' ")$'' '#' $:&,' #,' $:&,+' #8' "#'&' -1&' 8#,' $-&' +)$-' @&. '' "#' %$:&' (,' %$'18$!"1,&6' #,' !$1+&' #,' 2,#!1,&' "#' @&' @&.1'' "#' @&' %$(&' #,' %$'18$!"1,&(6' $'?' "#'&' -1&' 8,#%' $'?' -#1,6' &$-6' #,' #")&,' ' .,&(&'"+' #,' $"&, $-+' *)$"+#&4&,6' X#")&,' ")$'' ")&' $"&N , $-+' #,' ' .,&(&'"+' 8#,' !#-#1, '.' ")&' +$%&6[' &9!&2'' "$,!)' 8#,' *) !)' $--' ")&' 31" &+' (1&' $'(' '' ,&+2&!'' B")&,&#8')$4&' @&&'' 8 ,+'' !)$,.&(6' #'' 2$ '' #8' 8#,8&" '.' 8#,' &4&,?' +1!)' 88&'!&' $--' +1!)' "#'&' -1&6' -#1,6' &$-6' $'(' #")&,' ' .,&(&'"+6' $'(' $"&, $-+' *)$"+#&4&,6' X#")&,' ")$'' ")&' $"&, $-+' #,' ' .,&(&'"+' 8#,' !#-#1, '.' +1!)' "#'&' -1&6[' "#.&N ")&,' * ")' ")&' #9&+6' 1@+6' $'(' <&++&-+' *)$"+#&4&,' !#'"$ ' '.' ")&' +$%&6' $'(' $-+#' ")&' 1%' #8' '&')1'(,&(' 5#1'(+]' '(' *)&,&$+' ")&' +$ (' '$!"%&'')$")' @&&'' 8#1'(' '!#'4&' &'"6' $'(' '' +' '&!&++$,?' "#' ,&2&$-' ")&' +$%&6' $'(' "#' 2,#4 (&' #")&,' 5,#4 + #'+' '' - &1' ")&,&#8' ' @&' '' ")&,&N 8#,&' &'$!"&(' @?' ")&' D ' .;+' %#+'' 9!&--&'' $>&+"?6' @?' $'(' * ")' ")&'

K' L' (4 !&

+/ "O3 #' .' O2#I.2H^ 3I/ #4' 3 #D' 7ID'./ O' A7 3 /!' H' /DCD27DG'

(4 !&' $'(' #'+&'' #8'")&' #,(+' 2, "1$-' $'(' &%2#,$-6' $'(' #%N %#'+6' '' ") +' 2,&+&'' 5$,- $%&'' $++&%@-&(6' $'(' @?' ")7' 1")#, "?' #8' ")&' +$%&')$'' ")&' +$ (' '$!"%&'' +)$--' @&' $, (' ")&' +$%&' +')&,&@?' ,&2&$-&(

+D#2736' #' B2]D/' .' 3 #D' 7ID' IE #4' /' "2F #4' #' " E' + E^ EDEE #' 2#6' .2/ #2HD IE' IOE32#HD' 3"D/'3"2#' 32/H"' #' Z" H"'3"D' * I3 DE' E"277' "2FD' ODD#' H"2/4DG

' '(' @&&' '' 81,")&,' &'$!"&(')$'' &4&,?' $:&,' #8' "#'&' -1&' *)#' +)$--' '' ")&' %$: '.' #,' %$'18$!"1, '.' #8' "#'&' -1&' %$:&' 1+&' #86' #,' !$1+&' #,' 2,#!1,&' #,' 2&,% '' #,' +188&,' "#' @&' %$(&' 1+&' #86' $'?' "$,!)' ")&' 81--' 31" &+' *)&,&#'' +)$--' '#'')$4&' @&&'' (1-?' !)$,.&(6' #,' $'?' -#1,6' &$-6' #,' #")&,' 8$, '$!&#1+' 1@+"$'!&' #")&,' ")7'' "$,!)' ")&' 81--' 31" &+' *)&,&#'' +)$--')$4&' @&&'' (1-?' !)$,.&(6' #,' *)#' +)$--' ,&!& 4&6' #,')$4&' '') +' 5#++&++ #'' #'' @ +' 5,&% +&+' &'"&,&(' 8#,' %$: '.' "#'&' -1&6' $'?' -#1,6' &$-6' #,' #")&,' 8$, '$!&#1+' 1@+"$'!&' "#' @&' 1+&(' '' -&1' #8' #,' $+' $' 1@+" "1"&' 8#,' "$,!)' '' ")&' %$: '.' #,' %$'18$!"1, '.' #8' "#'&' -1&6' #,' *)#' +)$--' ,&!& 4&6' #,')$4&' '') +' 5#++&++ #'' '') +' 3*&-- '.' #1+&6' #,' #'' $'?' 5 ;&% +&+' #!!12 &(' @?') %6' $'?' "$,!)' 2, 4$"&-?' %$(&6' #,' ")&' 81--' 31" &+' *)&,&#'' +)$--' '#'')$4&' @&&'' 2$ (6' #,' $'?' -#1,6' &$-6' #,' #")&,' 8$, '$!&#1+' 1@+"$'!&' 8&,%&'' '.' #,' 8&,%&'"&(' "#' @&' 1+&(6' #,' !2@-&' #8' @&' '.' 1+&(6' '' -&1' #8' #8' $+' $' 1@+" "1"&' 8#,' "$,!)' '' %$'18$!"1, '.' "#'&' 8`76' 8' !2E&' #8' @& '.' !#'4&,"&(' '"#' "$,!)6' +)$--' 8#,' &4&,?' +1!)' 8-8&1!&' 8#,8&'' ")&' 1%' #8' '&')1'(,&(' 5#1'(+'>' $'('$--' +1!)' "#'&' -1&6' "$,!)6' #1,6' &$-6' $'(' #")&,' 8$, '$!&#1+' 1@+"$'!&6' "#.&")&,' *")' ")&' #9&+6' 1@+6' $+:+6' #,' #")&,' B?B&++&-+' #'"$ ' '.' ")&' +$%&6' +)$--' @&' 8#,N 8& "&(' $'(' %$?' @&' +& L&(' @?' $'?' 8- !&,' #,' 88 !&,+' #8' 9! +&

+D#2736' #' 3 #D' 7ID' B2]D/' IE #4' /' "2F #4' #' " E' + EEDE^ E #' HD/32 #' IOE32#HDE

' '(' 8#,' ")&' 51,2#+&' #8' 2,&4&'' '.' ")&' &9!&++ 4&' V+&' #8' &$,")?' $""&,+' $'(' 1@+"$'!&+' '' +1@+" "1" #'' 8#,' "$,!)' '' ")&' %$'18$!N "1, '.' #8' "#'&' -1&6' @&' '' 81,")&,' &'$!"&(6')$'' &4&8?' $:&,' #8' "#'&' -1&' *)#' +)$--' ,&!& 4&' #,' +)$--')$4&' '') +' 5#++&++ #'6' #,' *)#' +)$--' '' ")&' %$: '.' #,' %$'18$!"1, '.' #8' "#'&' -1&' %$:&' 1+&' #86' #,' !$1+&' #,' 2,#!1,&' #,' 2&,% '' "#' @&' %$(&' 1+&' #86' $'?' 1--&,+' $,")6' 3&,@?' $,")6' 5 $ +"&,' #8' 5$, +6')$-:6' #,' #")&,' &$,")?' $""&,' #,' 1@+"$'!&' X&9!&2' $+')&,& 'B$8"&,' 2,#4 (&([6' +)$--' 8#,8&' '' '&')1'(,&(' 5#1'(+6' "#.&")&,' *")' $--' +1!)' 1--&,+' $,")6' 3&,@?' $,")6' 5 $ +"&,' #8' 5$, +6')$-:6' #,' #")&,' &$,")?' $""&,' #,' 1@+"$'!&6' $'(' $--' "#'&' -1&' *) !)' +)$--' B)$4&' @&&'' %$(&' #,' %$'18$!"1,&(' ")&,& * ")] 5,#4 (&(' $-*$?+6' ")$'' '+)$--' @&' -$*81-' 8#,' $'?' $:&,' #8' "#'&' -1&' "#')$4&' '') +' 5#+N +&++ #'' $'(' "#' %$:&' 1+&' #8' $'?' 5 2&' -$?' ''%$'18$!"1, '.' "#'&' -1&6' '' ")&' 5,#2#," #'' #8' 4&' 5#1'(+' #'-?' #8' 5 2&' ($?' "#' &4&,?' '&' 1'(,&(' E& .)' #8' "$,!)6' 8#,' ")&' 51,2#+&' #8' @ '(' '.' #,' ,&'N (&, '.' ")&' "#'&' -1&' 8 ,%' $'(' $()&+ 4&

H3' O26' OD' 273D/DG' 3" E' DEE #

<' ' '(' @&' '' 81,")&,' &'$!"&(6')$'' ") +' !'' %$?' @&' $%&'(&(6' $-"&,&(6' #,' ,&2&$-&(' @?' $'?' !'' #,' !"+' "#' @&' 2$++&(' '' ") +' &++ #'' #8' 5$,- $%&''

)) '' = '

' ! " '

(+ ' 77

H3' 3 ' 2CC76' 37D' IO' .' & B77 #E' I3' .'
3"D' (#E 7G23DG' AI#G' 3' 3"D' D/F HD' .' 3"D'
D2/' '#D' 3" IE2#G' D4"3' "I#G/DG' 2#G' 3" /36'
3"/DD' [Q3"' ! ' Q _

#+"' H,$! #1+' #4&,& .'6
#1,' 7&+"?;+' %#+"' (1" 81-' $'(' -#?$-' 1@>&!"+6' ")&'
#%%#'+' #8' ")&' V' "&(' D '.(#%' #8' I ' (' $'('
' '' 5$,- $%&'"' $++&%E&(6' "#*$,(+' %$: '.' .##('
")&' 122-?' *) !)' *&')$4&' !)&&,81--?' .,$'"&(' "#' #1,' $>&+"?'
'' ") +' &++#'' #8' 5$,- $%&'"6')$4&' ,&+#-4&(' "#' .,$''' 1'"#' #1,'
$>&+"?' ")&' 1%')&,& 'B$8"&,' %&'" #'&(' $'(' (#' ")&,&8#,&' %#+"'
)1%@-?' @&+&&!)' #1,' $>&+"?' ")$"' "' %$? @&' &'$!"&(' $'(' @&' "'
&'$!"&(' @?' ")&' D$'.;+' %#+"' 9!&--&'"' $>&+"?6' @?' $'(' *")' ")&'
(4 !&' $'(' #'+&'"' #8' ")&' #,(+' 2, "1$-' $'(' &%2#,$-6' $'(' #%N
%#'+6' '' ") +' 2,&+&'"' 5$,- $ '&'"' $++&%@-&(6' $'('@?' ")&' 1")#, "?' #8'
")&' +$%&')$"' ")&,&' +)$--' $'(' %$?' @&' ++1&(' $'(' $22- &(6' 8#,' #,'
"#*$,(+' %$: '.' .##(' ")&' 122-?' .,$'"&(' "#' +' $>&+"?' 8#,' ")&'
&,4 !&' #8'")&' &$,' '&' ")#1+$'(' & .)"')1'(,&('$'(' ") ,"?B"),&&6' ")&'
1%' #8' 9' -- #'+' #1"' #8' ")&' #'+#- ($"&(' 1'(' #8' ")&' V' "&('
D '.(#%' #8' ' (' $'(' '-' $'(' ")&' #%% ++#'&,+' #8'
+' $>&+"?+' ,&$+1,?' #8' ")&' V' "&(' D '.(#%' #8' ' (' $'('
' '#*' #,' 8#,' ")&' %&' @& '.6' #,' $'?'),&&' #,' %#,&' #8' ")&%'
#,' ")&' #,(' .)' ,&$+1,&,' #8' ")&' V' "&(' D '.(#%' #8' ' ('
$'(' ' 8#,' ")&' %&' @& '.6' $,&' #,' +')&,&@?' $1")#, L&(' $'('
&%2#*&,&('"#' ++1&' $'(' $22-?' ")&' +$%&' $!!#,('.-?
' ' ' '(

&"D/D' E"277
OD' 2CC7 DG!'
. /3"D D/ '
?&*7 +++'
T!UUU!UUU<'
I3' .' 3"D'
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126ʿ$'(ʿ81,' +) '.ʿ")&ʿ #1+&+ʿ$'(ʿ 1 -('.+ʿ*)&,& 'ʿ")&ʿ+$ (ʿ 88 !&+ʿ
+)$--ʿ)&ʿ)&-(ʿ $'(ʿ ")$"ʿ ")&ʿ +$ (ʿ &!& 4&,6ʿ #1"ʿ #8ʿ ")&ʿ #' &+ʿ $#ʿ
++1&(ʿ"#ʿ) %6ʿ +)$--ʿ $'(ʿ %$?ʿ 2$?ʿ"#ʿ")&ʿ #'+"$@-&+ʿ$'(ʿ 1,4&?#,+ʿ +#ʿ
$22# '"&(ʿ$+ʿ$8#,&+$ (6ʿ 8#,ʿ")&,ʿ ,#1@-&ʿ $'(ʿ ""&'($'!&6ʿ+1!)ʿ 1%ʿ
$+ʿ%$?ʿ8,#%ʿ %&ʿ"#ʿ %&ʿ$22&$,ʿ,&$+#'$@-&ʿ"#ʿ '&ʿ#8ʿ +ʿ $>&7?A+ʿ
5, '! 2$-ʿ &!,&"$, &+ʿ#8ʿ "$"&6ʿ$'($'?ʿ&9",$#,('$,?ʿ 92&'!&+ʿ'&!&+N
+$,-?ʿ '!1,,&(ʿ 'ʿ$22,&)&'('.ʿ 88&'(&,+6ʿ$'(ʿ 'ʿ&9&!1" '.ʿ")&ʿ ,(&,+ʿ
#8ʿ")&ʿR1+" !&+ʿ $!" '.ʿ1'(&,ʿ$'(ʿ @?ʿ4 ,"1&ʿ#8ʿ") +ʿ !"6ʿ +1!)ʿ &9",$N
#,('$,?ʿ 92&'!&+ʿ @& '. 8 ,+"ʿ &9$% '&(ʿ $'(ʿ $22,#4&(ʿ #8ʿ @?ʿ ")&ʿ
R1+" !&+ʿ$""&'('.ʿ")&ʿ5#- !&ʿ 88 !&ʿ"#ʿ E) !)ʿ+1!)ʿ #'+"$@-&+ʿ#,ʿ 1,Bʿ
4&?#,+ʿ+)$--ʿ@&ʿ,&+2&!" 4&-?ʿ$""$!)&(ʿ ʿ $'(ʿ+)$--ʿ$'(ʿ%$?ʿ2$?6ʿ1'(&,ʿ
")&ʿ 3 ,&!"#'ʿ#8ʿ+1!)ʿ5, '! 2$-ʿ &!,&"$,?ʿ#8ʿ "$"&6ʿ+1!)ʿ81,")&,ʿ 1%ʿ
8#,ʿ,&*$,('.ʿ")&ʿ&9",$#,('$,?ʿ 3 - .&'!&ʿ / 9&,"#'ʿ #8ʿ$'?ʿ#8ʿ")&ʿ
+$ (ʿ #'+"$@-&+ʿ#,ʿ 1,4&?#,+6ʿ #,ʿ 8#,ʿ !#%2&'+$" '.ʿ")&%ʿ8#,ʿE#1'(+ʿ
#,ʿ +&4&,&ʿ '>1, &+ʿ ,&!& 4&(ʿ 'ʿ "-&ʿ 5&,8#,%$'!&ʿ X,8ʿ")& ,ʿ 31" &+6ʿ #,ʿ
8#,ʿ $'ʿ --#*$'!&ʿ "#ʿ +1!)ʿ#8ʿ")&%ʿ $+ʿ +)$--ʿ @&ʿ !#%2-&"&-?ʿ (+$@-&(
@?ʿ @#(-?ʿ '>1,?6ʿ#,ʿ *#,'ʿ#1"ʿ @?ʿ 3&).")ʿ#8ʿY&,4 !&

)ʿ,IE3 HDʿ ʿ '(ʿ @&ʿ ʿ 81,")&,ʿ &'$!"&(6ʿ 8)$"ʿ '#ʿ R1+" !&ʿ #8ʿ")&ʿ5&$!&ʿ
E"27ʿ 32]Dʿ 8#,ʿ")&ʿ #1'"?ʿ#8ʿ 8ʿ #1'"?ʿ 28ʿ ʿ "?ʿ$'(ʿ @&,"?ʿ
ADDEʿ OI3ʿ 23ʿ #8ʿ / * ʿ#,ʿ @&,"?ʿ#8ʿ")&ʿ #*&,ʿ#8ʿ ʿ ʿ) +ʿ -&,:6ʿ#,ʿ
3"Dʿ+IO7 Hʿ 9 K$'?ʿ5&,+#'ʿ#'ʿ")&,ʿ &)$-86ʿ &-+&*)&,&ʿ")$'ʿ $"ʿ ")&ʿ+$ (ʿ51@- !ʿ 88 !&ʿ
'..HDʿ Zʿ 'ʿ($ʿ ʿ$'($"ʿ")&ʿ+$ (ʿ5!- !&ʿ 88 !&+6ʿ+)$--ʿ(,&!"-?#,ʿ'(,&!, ?ʿ
3/DD3ʿ 2#Gʿ 23ʿ V2#'ʿ $'?ʿ 5,&"&'!&ʿ *)$"&4&,6ʿ "$:&ʿ #,ʿ ,&!& 4&ʿ $'?ʿ &&6ʿ &*$,(6ʿ
3"Dʿ+ 7 HDʿ H,$"1 "?6ʿ &!#%2&'&&ʿ 8#,ʿ $'?ʿ !"ʿ@?ʿ@ %ʿ#"ʿ ") 7ʿ (#'&ʿ #,ʿ"#ʿ
'..HDE @&ʿ (#'&ʿ 'ʿ")&ʿ 9&!1" #'ʿ#8ʿ) +ʿ#,ʿ")&,ʿ 8-!&ʿ#,ʿ %2-#?ʿ$+ʿR1+" !&ʿ
#8ʿ")&ʿ5&$!&ʿ #,ʿ -&,:ʿ$+ʿ$8#,&+$ (6ʿ * ") 'ʿ")&ʿ % "+ʿ#8ʿ")&ʿE&&:-?ʿ
--+ʿ #8ʿ #,"$-"?6ʿ #,ʿ * ") 'ʿ ")&ʿ 5$, +)&+ʿ #8ʿa ʿ 2 2" ʿ
> ʿ * ʿ>* ʿ0 ʿ ʿ * ʿ + ʿ ʿ'ʿ")&ʿ

+D#2736ʿ UU< #1'"?ʿ #8ʿ 8ʿ 12#'ʿ 2$ 'ʿ #8ʿ 8#,8& ' '.ʿ ")&ʿ 1%ʿ #8ʿ '&ʿ
)1'(,&(ʿ2#1'(+ʿ ʿ&4&,?+1!)ʿ 8&'!&6ʿ#'&ʿ #&"?ʿ")&,&#8ʿ"#ʿ")&ʿ
$(ʿ &!&4&,6ʿ"#ʿ @&ʿ $22-&(ʿ"#ʿ")&ʿ51,2#+&+ʿ #8ʿ") +ʿ !"6ʿ $'(ʿ ")&ʿ
#"@&,ʿ %&"?ʿ")&,&#86ʿ*"-ʿ81--ʿ #+"+ʿ#8ʿ 1"6ʿ"#ʿ")&ʿ5&,+#'ʿ*)#ʿ+)$--ʿ
+1&ʿ8#,ʿ")&ʿ+$%&ʿ '$'?ʿ#8ʿ +ʿ $>&+"?;+ʿ #1,"+ʿ#8ʿ &!#,(ʿ$"ʿ / 2ʿ
I#I# #E.D/ʿ * -ʿ$'(ʿ")$"ʿ&4&,?ʿ 1%%#'+ʿ* !)ʿ+)$--6ʿ (-&,ʿ")&ʿ 2$++ '.ʿ#8ʿ
+D/E #Eʿ3 ʿ ") +ʿ !"6ʿ @&ʿ ++1&(ʿ @?ʿ$'?ʿR1+" !&ʿ #8ʿ")&ʿ5&$!&ʿ #8ʿ")&ʿ #1'"&+ʿ #8ʿ
2CCD2/ʿ 32#6ʿ + 8ʿ $'(ʿ %,!>8ʿ ,&+2&!" 4&-?6ʿ ,&C1 , '.ʿ $'?ʿ 5&,+#'ʿ ,&+ ('.6ʿ
=2HDʿZ 3" I3ʿ *") ")&ʿ +$ (ʿ % "+ʿ$'(ʿ 5$, +)&+ʿ"#ʿ$22&$,ʿ $"ʿ $'?2-$!&ʿ *")#1"ʿ
3"Dʿ O 3Eʿ ")#+&ʿ % "+ʿ$'(ʿ5% +)&+6ʿ"#ʿ$'+*&,ʿ$'?ʿ '8#,%$"#'ʿ#,ʿ #%2-$ 'ʿ
3" Eʿ H3!ʿ "#1!) '.ʿ$'?ʿ $""&,ʿ$, + '.ʿ*")'ʿ")&ʿ+$ (ʿ % "+ʿ$'(ʿ5$, +)&+6ʿ+)$--ʿ
F G @&ʿ 1""&,-?ʿ 4#ʿ ($'(ʿ #8ʿ '#'&ʿ 88&!"ʿ $'?ʿ $*6ʿ 1+"#%6ʿ#,ʿV+$.&ʿ "#ʿ
? "#4ʿ ")&ʿ !#'",$,?ʿ '#"* ")+"$'('.]ʿ 5,#4 (&(ʿ $-*$?+6ʿ ")$"ʿ '#")'.ʿ 'ʿ
"(3D#3 ʿD&^ ") +ʿ !"ʿ #'"$ '&(ʿ+)$--ʿ@&ʿ !#'+",1&(ʿ"#ʿ&9"&'(ʿ"#ʿ$'?ʿ &&+ʿ"$:&'ʿ
3D#Gʿ3 ʿADDE $"ʿ$'?ʿH&'&,$-ʿ#,ʿT1$,"&,ʿ &++#'+ʿ#8ʿ")&ʿ5&$!&6ʿ#,ʿ$"ʿ$'?ʿ &&"Bʿ
0ʿ '.

' . #8 R1+" !&+ 8#, ")& 51,2#+&+ #8 - !&'+ ' . -&)#1+&+6 #, "# $'? 5&&+ "$:&8" @? ")& <&+",? -&,:6 #, @? ")& -&,: "# ")&)1,!)N *$,(&'+ $'(4&,+&&,+ #8 $'? 5$, +)6 8#, ")& 51,2#+& #8 &'8#,! ' . ")& 5$?%&'" #8 $'? $9&+ #, ++&++%&'"+ $, + ' . * ") ' ")& +$%& 5$, +)6 #, 8#, ")& 51,2#+& #8)&$, ' . $'((&"&,% 2>' . $'? 88&'!& !#.' L$@-& @&8#,& R1+" !&+ #8 ")& 5&$!&6 @? 4 ,"1& #8 $'? "$"1"& %$(& $'(2,#4 (&(8#, ")& +2&! $- &.1-$" #' #, H#4&,'%&'" #8 +1!) 5$, +)

23 Y I 2/3D/
DEE #E! /
B DD3 #4E .
, I E3 HDE . /
7 HD#E #4 7D^
" I EDE! H

' (@& " 81,")&, &'$!"&( )$" ' +#%& !#'+2 !1#1+ 5$," #8 2O7D . &$!) #8 ")& +$ (5#- !& 88 !&+6 $'($-+# #8 ")& +$ (51@- ! 88 !& 3 OD ' ")&,& +)$-- @& $88 9&($ $@-& #8 ")& &&+ *) !) %$?)1'.126 -&.$--? @& "$:&' $" +1!) 88 !&+ ,&+2&!" 4&-? 1'(&, $' !" 2$++&(' ")& *&'"?B+ 9") &$, #8 ")& & . ' #8 D ' . ")& &!#'(6 '" N "1-&(1 " + " / H / ! -Q & 1 $'(1'(&, $'#")&, !" 2$++&(' ")& *&'"?B+&4&'") &$, #8 ")& & . ' #8 D ' . ")& &!#'(6 'B " "1-&(* + $ > * C@ ,C, ! - > 5 + + / + " = > * - * * " * > " - * $ 9 *" 5 >8 , 1+&1%6 - * 5 " 1 " + " + & I > ((-&+&9 5 * > * ' * " + - * .8 + > *

- $'(")$" " +)$-- @& -$*81- 8#, $'? R1+" !& $"+1!) 88 !&+ ,&+2&!" 4&-? "# ,&81+& "# (# $'? !" 8#, *) !) $'? && +)$-- @& (&%$'($@-& 1'-&++ +1!) && +)$-- @& 8 ,+" 2$ (e $'(")$" 8 $'? +1!) !" +)$-- @& (#'&6 $'(")& && (1& ")&,&#' +)$-- '#" @& 2$ (6 " +)$-- @& -$*81- 8#, $'? R1+" !& #8 ")& 5&$!& "# +1%%#' ")& 5&,+#' 8,#%6 *)#%6 +1!) && +)$-- @& (1&6 $'("# %$:& ,(&, 8#, 5$?%&'" #8 ")& +$%&6 * ") ")& #+"+ #8 ")& 5,#!&&(' . +6 $'(' (&8$1-" #8 5$?%&'" "# -&4? ")& +$%&6 * ") ")& #+"+ #8 ")& 3 +",&++6 @? E$,,$'" 1'(&,) + $'($'(&$-

< ' (@& " 81,")&, &'$!"&( )$" ")& R1+" !&+ #8 ")& +$ (51@- ! 88 !& ' ($ $'(")& R1+" !&+ $22# '"&("# $"'& '($" ")& +$ (5#- !& 88 !&+6 $'(")&, -&,:+ ,&+2&!" 4&-?6 +)$--6 ##:+ "# @& 2,#4 (&(8#, ")$" 51,2#+&6 :&&2 $ 81--6 ",1&6 $'(2$," N !1-$, !!#1'" #8 $-- &&+ "$:&' $'(,&!& 4&($" &$!) #8 ")& +$ (88 !&+6 "#.&")&, * ") $-- 5&'$-"&+ $'(#,&& "1,&+ *) !) +)$--)$4& @&&' ,&!#4&,&(6 -&4 &(6 #, ,&!& 4&(' 21,+1$'!& #8 $'? (>1(!$" #'6 #'4 !" #'6 #, ,(&,)$(#, %$(& $" $'? #8 ")& +$ (88 !&+6 #, $'? 5,#!&++ #, E$,,$'" ++1 ' . 8,#%6 ")& +$%&6 "# *) !) ##:+ #8 !!#1'" ")& +$ (&!) 4&+ $'((R1+" !&+ +)$-- $'(%$?6 #, 4& $'? !-&,: #8 $'? R1+" !& #8 ")& 5&$!& #8 !!#1'" $'? 8 + #8 ")& +$ (1'"# +1!)6 *)#%6 $'(")& $'? $"& +)$-- ' ($'($- #8 !!#1'" +)$-- @& (R1+" !& #8 ")& 5&$!& "# +$%& "#)$4& ")& -&,: +1!) @##:+ !!#1'" &"! ' +1!) %$''&, "# "#

3 DD^ ! 2#G
A / D 3 I /DE
/DHD FDG 23
3"D E2 G
' .. HDE E"277
OD GD7 FD/DG
\ I 2/3D/76 3 '
3"D =DHD FD/!
2#G 3"D
O I #3
3"D/D .C2 G
3 ' " O

T L B (2C

- ?' /' (I#36' .' *' 2#G' E"27' C26' 3"D' 0 I#3' .' G7
EIH"' ADDE' I#3 ' EIH"' =DHD FD/' 3 ' OD' 2CC7 DG' O' O2##D/' "D/D # OD. /D'
O D#3 #DG

+D#273 DE' 2#G'
/B FD/D '
OD. /D' 2#6' .'
3"D' , I E3 HDE'
3 ' OD' C2 G'
3 '3"D' = D^
HD FD/

' #G'5 D' ' . I /3"D/' D#2H3DG' "23' Z"D/D' O6' 2#6' H3' /' H3E!'
eJ."D/ 3"2#' 2#' H3' C2EEDG' #' 3"D' D#3"' - D2/' .' 3"D' D 4%' .'> E' 723D'
B 25DE36' ? #4' ' 3"D' A I /3"!' #3 3 I 7DG' % ' % ' ' (" O ' '
' ' ' ' ' - " ' 2#6' +D#273 DE' /' A /.D 3 I /DE!' ' .'
"2/DE' .' +D#273 DE' /' A /.D 3 I /DE!' 2/D' /' E"27' "D/D2.3D/' OD' O2GD' /D'
H FD/207D' #' 2' E I O O2/6' B 2##D/' OD. /D' 2#6' , I E3 HD' /' , I E3 HDE' .' 3"D'
+D2HD!' 2#G' O6' EIH"' H3' /' H3E' /DECDH3 FD76' 3"D' E2 O D' 2/D' /' E"287 .DD'
7 O 3DG' 2#G' O2GD' C262O7D' 3 ' > E' B 25DE36!' /' 3 ' 2#6' G6' (/C /23D!'
/' 3 ' 2#6' +D/E #' /' +D/E #E' Z "23E DFD/!' E2FD' 2#G' D&H%3' 3"D' #. /O D/'
Z" ' E"%7 EID' . /' 3"D' E2O D!' /' 2#6' +2/36' 244/ DFDG!' #' DFD56' EIH"'
(2ED' 3"D' E2 O D!' .' /DH FD/DG' ' /' 2G5 I G4DG' OD. /D' 2#6' , I E3 HD' ' /' , I E '
3/DDE' 23' 3"D' E2 G' + I O7 H' ' .. HD' #' ' /' 2#6' .' 3"D' E2 G'
+ 7 HD' ' .. HDE!' E"27!' # 3Z 3"E32#G #4' 2#6' 3" #4' #' EIH"' H3' /' H3E'
/DECDH3 FD76' H #32 #DG!' OD' /DH FD/DG' . /' 2#G' 2G5 I G4DG' OD' C2 G' 3 '
3"D' E2 G' = DHD FD/' " ' O D' OD O!' 3 ' .DD' O6' " O' %\CC7 G .3Z' 3"D'
+ I /C EDE' .'3" E' H3N 2#G' 3"D' E2O D' E"27' # 3' #' 2#6' (2ED' OD' /DH FD/DG'
O6' /' 2G5 I G4DG' 3 ' OD C25G' 3 '2#6' 37K /' +D/E #' 3"2#' 3"D' E2 G' = DHD FD/!'
##7DEE' EIH"' +D/E #' 3"D' #. /O D/' /' 3"D' +2/36' 244/ DFDGW' +/ ^
F GDG' 27Z26E!' 3"23' # 3" #4' "D/D #' H #32 #DG' E"27' D&3D#G' /' OD'
H #E3/ I DG' 3 'D&3D#G' 3 ' 2#6' +D#273 DE' A /.D 3 I /DE' /DD 6D/DG' I # %'
2#6' H3' /D723 #4' 3 ' 3"D' (I E3 O E' /' 3 ' /2GD' /') 2F 423 #!' 2#G' EIDG'
. /' O6' 3"D' * /DH3 #' .' 3"D' (O O EE #D/E' .'> E' R7 $>&+"?; ' (I E3 O E!'
Z" O "' % 27' .DD' C2 G' 3 ' EIG"' CD/E #' 2E' 3"D' E2 G' (O O EE 2D/E' E"2.3'
G /DH3' 3 ' /DHD FD' 3"D' E2O D

.' +D E' 2#G'
+D#273 DE' 2/D'
##3' 2HH I#3^
DG'. /' = D^
HD FD/' O26'
EID' >' 3"D'
2O D' #' 2#6'
(I /3' .' = D^
H /G

' #G' OD' 3' . I /3"D/' D#2H3DG!' "23' .' 3"D' , I E3 HDE' 2CC #3DG'
2E' 2. /DE2 G!' /' 2#6' 3"D/' +D/E #!' "2F #4' /DHD FDG' 2#6' EIH"' ADDE'
23' 3"D' E2 G' + I O7 H' ' .. HD' #' (' ' 23' 2#6' .' 3"D' E2 G' + 7 HD'
' .. HDE!' E"27' #D47DH3' 3 ' 2HH I#3' . /' 2#G' C26' 3"D' E2O D' #' O2##D/'
2. /DE2 G!' /' .' 2#6' , I E3 HD!' , I E3 HDaE' (7D/]!' (%2.D7D!' ' .. HD/!'
/' 3"D/' +D/E #' Z" ' E"27' 7DF6' /' /DHD FD' EIH"' +D#273 DE' /' #,N
.D 3 I /DE!' /' "2/DE' .' +D#273 DE' /' A /.D 3 I /DE!' E"27' #D47DH3' 3 '
3"D' E2O D' #3 ' 3"D' >2#GE' ' EIH"' = DHD FD/!' /' .' 2#6' +D/E #' 26 '
#4' /DE 4#DG' 2#6' EIH"' ' .. HD' .' = DHD FD/!' /' "2F #4' ODD#' /D O FDG'
./ O' 3"D' E2O D!' E"27' #D47DH3!' Z 3" #' Z D#36 #D' * 26E' 2.3D/') 3 HD'
. /' 3"23' + I /C ED!' 3 ' 2HH I#3' . /' 2#G' C26' #3 ' 3"D' >2#GE' / .' 3"D'
I HHDDG #4' = DHD FD/' 2.3' EIH"' I O E' .' B #D6' 2E' E"27' /D O 2 #' #' " K
>2#GE' 2CC D2 B D' 3 ' 3"D' + I /C EDE' .' 3" E' H3!' 3' E"27' OD' 72Z. I 7. /'
EIH"' = DHD FD/'. /' 3"D' > O D' OD #4!' #' O E' Z#' C/ CD/') 2O D' #76!' /'
O6' " E') 2O D' 2#G' * DEH/ C3 #' .' ' .. HD!' 3 ' EID' . /' 2#G' /DH FD/' 3"D'
E2O D!' Z 3"' (E3E' .' I 3' 2E' OD3ZDD#' 33 /#D6' 2#G' (7 D#3!' #' 2 Z' .' > I /
B 25DE36aE' (I /3E' .' = DH /G' 23' (' O6' H3 #' .' * DO3!' #'
Z" H"' H3 #' 3' E"27' OD' E I .. H D#3' . /' EIH"' = DHD FD/' 3 ' GDH72/D' 2E' . /'
B #D6' "2G' 2#G' /DHD FDG' 3 '3"D' ED' .' IH"' = DHD FD/'. /' 3"D' + I /C EDE'
.'3" E' H3' 7 2#G' 3"D' * D.D#G2#3' /' * D.D#G2#3E' #' E3 H"' H3 #' O26!' 23'
3"D' * EH/D3 #' .'2#6' , I G4D' .' EIH"' (I /3!' .DD' "D7G' 3 ' ECDH 27' #'
EIH"' H O CD3D#3' I O' 2E' EIH"' , I G4D' E"27' /GD/' 2#G' G /DH3N 2#G' #' 2#6'
EIH"' H3 #' 3"D' (I /3' #' Z" H"' EIH"' H3 #' E"27' OD' O/ I4"3' O26!'
.' EIH"' (I /3' E"2.3' 37 #]' 5Z CD/!' 23' 3"D' #E32#HD' .' G 3"D/' .'3" '
+2/3 DE!

$ B ' ' (2C' '

5$," &+6' ,&8&,' ")&' !!#1'" '' (+21"&' '' $' +1%%$,?' $''&,' "#' @&' $1("&(' @?' $'?' 8H!&,' #8' ")&' #1," #,' #")&,' 8" 5&,+#'6' $'" "+' 3 +N !,&" #'6' *)#' %$?' &9$% '&' @#")' 5-$ '"8-5'$'(' 3&8&'($'" 12#'' $")' X*) !)' $")' ")&' +$ (' &8&,&&' +)$--')$4&' 5#*&,' "#' $(' ' +"&,[' $'(' V2#'' ")&' &2#," #8' +1!)' &8&,&&6' 1'-&++' &")&,' #8' ")&' 5$," &+' +)$-- +)#*' .##(' $1+&' "#' ")&' !#'",$,?6' +1!)' #1," %$?' %$:&' $ 1-&6' &")&,' 8#,' ")&' 5$?%&'" #8' +1!)' 1,$' $+' 12#'' +1!)' &2#," +)$-- $22&$,' "#' @&' (1&6' #,' 8#,' +"$? '.' ")&' 5,#!&&('.+' '' +1!)' !"#'6' $'(' "#$ ' +1!)' &,,$+' $'(' #'("#'+' $+' "#' ")&' +$%&' #1," +)$-- $22&$,' ,&$+#'$@-&' $,(' >1+"6' #,' %$?' #,(&,' R1(.%&'" "#' @&' &'"&,&(' 12' @?' #'8&++#'' 8#,' +1!)' 1%' $+' 12#'' +1!)' &2#," +)$-- $22&$,' "#' @&' (1&

< ' '(' @&' "81,")&,' &'$!"&(')$" '' !$+&' #8' ")&' 3&$")' #8' $'?' =DHD FD/' +1!)' &!& 4&,6' #,' #8' $'?' 5&,+#'')$4 '.' ,&+ .'&(' #,' @&&'' ,&%#4&(8,#%' +1!)' 88 !&6' #,' #8' $'?' #8' ")&' #")&,' 5&,+#'+' *)#%' ")&' +$ (' >2#GE' .' GD' &!& 4&,' 8#,' ")&' %&' @& '.' +' $1")#, L&(' "#' +1&' $+' $8#,&+$ (6' '' HD2EDG' = D' &4&,?' +1!)' $+&' ")&' &!& 4&,' 8#,' ")&' %&' @& '.' %$?6' '') +' #*'' HD FD/E!' 2#G' 2,#2&,' $%&' #'-?6' #,' @?') +' $%&' $'(' 3&+!, 2" #'' #8' 88 !&6' +1&' 8#,' /DH FD/' ./ O' $'(' ,&!#4&,' +1!)' 1%' #8' #'&?' $+' +)$--)$4&' @&&'' ,&%$ ' '.' '' ")&' &DHI3 /E $'(+' #8' +1!)' B(&!&$+&(' &!& 4&,' #,' #")&,' 5&,+#'' $22- !$@-&' "#' ")&' 51,2#+&+' #8' ")+' !"6' #,' ")&' 9&!1"#,+' #,' (% ' +",$"#,+' #8' +1!)' 5&,+#'' (&!&$+&(6' '' *) !)' !"#'' +)$-- @&' +188 ! &'" 8#,' ")&' 5-$ 'N "88' "#' (&!-$,&' ")$" ")&' 3&!&$+&(' *$+' '(&@"&(' "#' ")&' 5-$ '" 88' 8#,' #'&?')$(' $'(' ,&!& 4&(' "#') +' V+&' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' #8' ")$" ")&' 3&!&$7(' (&(' 2#++&++&(' #8' #'&?')$6(' $'(' ,&!& 4&(' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' *)&,&@?' $'' !"#'' $!!,1&(' "#' ")&' 5-$ '" 88' "#' (&%$'(' $'(')$4&' ")&' +$%&' #8' +1!)' 9&!1"#,+' #,' (% ' +",$"#,+' $'(' ")&' -:&' !"#'' +)$-- $'(' %$?' @&' @,#1.)" $.$ '+" $'?' 9&!1"#,+' #,' (% ' +",$"#,+' #8' 9&!1"#,+' #,' ('>' ' +",$"#,+' '' $-- *) !)' !"#'+' ")&' 3&8&'($'" #,' 3&8&'($'"+' %$?' 2-&$(' '' -:&' $''&,6' $'(' 4-' ")&%+&-4&+' #8' ")&' -:&' $""&,+' '' ")&,' 3&8&'!&6' $+' '' $'?' !"#'' 8#1'(&(' 12#'' %2-&' #'",$!"+' #8' ")&' #,.'$-' &+"$"#,' #,' '"&+"$"&' $'(' '' $--' !"#'+' "#' @&' @,#1.)" @?' +1!)' &!& 4&,' @?' 4,"1&' #8' ") +' 5,##8' #8' ")&' 5-$ '" 88;+' $!" '.' '' ")&' 9&!1"#'' #8' +1!)' 88 !&' +)$-- @&' +188 ! &'" 4(&'!&6' #8') +')#-('.' ")&' +$%&6' 1'-&++' ")&' !#'",$,?' +)$-- @&' +)#*'' '' 4(&'!&' @?' ")&' 3&8&'($'" #,' 3&8&'($'"+' '' +1!)' !"#'

< ' '(' @&' "81,")&,' &'$!"&(')$" +1!)' &!& 4&,' +)$-- &4&,?' &!&4&,"#'),&&' #'")+6' #,' #8"&'&,' 8' ,&C1 ,&(6' %$:&' #1" $'81-- $'(' 2$," !1-$,' /D#GD/' H' !!#1'" #8' $-- #'' &+' @?') %' ,&!& 4&(' $'(' 2$ (' $+' $8#,&+$ (' ' $'(' H I#3E\I2/' +1!)' !!#1'6' "#.&")&,' *) "' 2,#2&,' <#1!)&,+6' +)$-- @&' (&- 4&,&(' .3D#D/' .' /D' @?') %6' 8#,' ")&' 51,2#+&' #8' @& '.' &9$% '&(' $'(' $1("&(6' "#' $'?' C1,&(' 5&,+#'' #,' 5&,+#'+' *)#%' '&' #8' +' $>&+"?;+' 5, '! 2$-' &!,&"$,' &+ #8' "$"&' %$?' (,&!"

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8#,ʿ $'?ʿ +1!)ʿ #1'"?6ʿ "?66ʿ #,ʿ #,#1.)ʿ ʿ $'(ʿ &4&,?ʿ +V!)ʿ R1+" !&6ʿ D&!& 4&,6ʿ 1,4&?#,6ʿ #,ʿ #'+"$@-&ʿ #88&'(ʿ '.ʿ ")&,& 'ʿ +)$--ʿ 8#,8&'ʿ ")&ʿ 1%ʿ #8ʿ '&ʿ)1'(,&(ʿ 5#1'(+6ʿ #'&ʿ # &"?ʿ ")&,&#8ʿ "#ʿ ")&ʿ '8#,%&,6ʿ $'(ʿ ")&ʿ #")&,ʿ # &"?ʿ ")&,&#8ʿ "#ʿ ")&ʿ V+&ʿ #8ʿ ")&ʿ 5##,ʿ #8ʿ ")&ʿ 5$, +)ʿ #,ʿ 5-$!&ʿ *)&,&ʿ +1!)ʿ 88&'!&ʿ +)$--ʿ @&ʿ !#%% ""&(6ʿ "#ʿ @&ʿ ,&!#4&,&(ʿ @?ʿ $'?ʿ 5&,+#'ʿ ")$"ʿ +)$--ʿ +1&ʿ 8#,ʿ ")&ʿ +$%&ʿ 'ʿ $'?ʿ #8ʿ +ʿ $>&+"?;+ʿ #1,"+ʿ #8ʿ &!#,($"ʿ / * * ʿ#9 *ʿ ")&ʿ 2$!&ʿ #8ʿ '&ʿ &$,ʿ$8"&,ʿ +1!)ʿ 88&'!&ʿ !#%% ""&(ʿ 5,#4 (&(ʿ '&4&,")&-&++6ʿ ")$"ʿ '#") '.ʿ 'ʿ ") +ʿ !"ʿ !#'"$ '&(ʿ +)$--ʿ &9"&'(ʿ "#ʿ +1@>&!"ʿ $'?ʿ +1!)ʿ R1+" !&6ʿ &!& 4&,6ʿ 1,4&?#,6ʿ #,ʿ #'+"$@-&ʿ "#ʿ $'?ʿ 5&'$-"?ʿ 8#,ʿ * ʿ !"ʿ (#'&ʿ @?ʿ) %ʿ $"ʿ #,ʿ !#'!&,' '.ʿ $'?ʿ #8ʿ ")&ʿ +$ (ʿ -&!"#'+ʿ 'ʿ ")&ʿ 3 +!)$,.&ʿ #8ʿ) +ʿ 31"?ʿ 'ʿ $'?ʿ #8ʿ ")&ʿ +$ (ʿ ,&+2&!" 4&ʿ 2! "&+

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O6ʿ 2ʿ , I E3 HDʿ
/DE G #4ʿ #ʿ /ʿ
#D2/ʿ 3"Dʿ
+72HDʿ I "D/Dʿ
3"Dʿ I O5DH3ʿ
B 233D/ʿ E"277ʿ
2/ EDʿ O26ʿ ODʿ
G #Dʿ O6ʿ 2ʿ
5 I E3 HDʿ 23ʿ
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ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$" *)&,&6ʿ @?ʿ $'?ʿ $*ʿ '#*ʿ 'ʿ @& ' .ʿ #,ʿ)&,&$8"&,ʿ "#ʿ @&ʿ %$(&6ʿ $'?ʿ !ʿ +ʿ (,&!"&(ʿ #,ʿ $1")#, L&(ʿ "#ʿ @&ʿ (#'&ʿ @?ʿ $'?ʿ #8ʿ ")&ʿ R1+" !&+ʿ $22# '"&(ʿ $+ʿ $8#,&+$ (6ʿ ")&ʿ +$%&ʿ ")$?ʿ @&ʿ (#'&ʿ $'(ʿ &9&!1"&(ʿ @?ʿ $'?ʿ #8ʿ ")&ʿ R1+" !&+ʿ #8ʿ ")&ʿ $ (ʿ 51@- !ʿ 88 !&ʿ 'ʿ ($ʿ ʿ $'(ʿ *)&,&ʿ $'?ʿ !ʿ +ʿ (,&!"&(ʿ #,ʿ $1")#, L&(ʿ "#ʿ @&ʿ (#'&ʿ @?ʿ $'?ʿ R1+" !&ʿ #,ʿ R1+" !&+ʿ #8ʿ ")&ʿ 5&$!&ʿ 9&+ ('.ʿ 'ʿ #,ʿ '&$,ʿ #,ʿ , &98ʿ ")&ʿ 5$, +)ʿ #,ʿ 5-$!&ʿ *)&,&ʿ $'?ʿ 8 &'!&ʿ #,ʿ #")&,ʿ $""&,ʿ !#. ' L$@-&ʿ @&8#,&ʿ) %ʿ #,ʿ ")&%ʿ +)$--ʿ @&ʿ !#%% ""&(ʿ #,ʿ +)$--ʿ $, +&6ʿ ")&ʿ +$%&ʿ R1, +(ʿ !"#'ʿ +)$--ʿ $'(ʿ %$?ʿ @&ʿ &9&, +&(ʿ @?ʿ $'?ʿ $ʿ R1+" !&ʿ #,ʿ R1+" !&+ʿ $!" '.ʿ 'ʿ ")&ʿ +$ (ʿ 5$@) !ʿ 88 !&ʿ 'ʿ ($ʿ ʿ #,ʿ $ʿ ""!)ʿ #8ʿ ")&ʿ +$ (ʿ 5#- !&ʿ 88 !&+ʿ $+ʿ %$?ʿ @&ʿ + "1$"&(ʿ '&9"ʿ #,ʿ '&$,&+"ʿ "#ʿ +1!)ʿ 5$, +)ʿ #,ʿ 5-$!&ʿ $'(ʿ ")$"ʿ +1!)ʿ #8ʿ ")&ʿ $8#,&+$ (ʿ R1+" !&+ʿ *)#ʿ +)$--ʿ @&ʿ R1+" !&+ʿ #8ʿ ")&ʿ 5&$!&ʿ 8#,ʿ ")&ʿ @&,"?ʿ #8ʿ +ʿ $>&+"?;+ʿ #*&,ʿ #8ʿ +)$--ʿ $'(ʿ %$?ʿ +ʿ $!"ʿ +1!)ʿ R1+" !&+ʿ 8#,ʿ ")&ʿ +$ (ʿ @&,"?ʿ $'(ʿ ")&ʿ +$ (ʿ 51@- !ʿ 88 !&ʿ 'ʿ ($ʿ ʿ #,ʿ $ʿ $'?ʿ #8ʿ ")&ʿ +$ (ʿ 5#- !&ʿ 88 !&+

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2H3ʿ 23ʿ 2#6ʿ .ʿ
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, I E3 HDʿ .ʿ
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3&@$1!)&,?6ʿ $'(ʿ , %&6ʿ $'(ʿ 'ʿ +ʿ &92&(&''ʿ "#ʿ ,&.1-$"&ʿ +1!)ʿ $,+ʿ .ʿ DOC7Dʿ
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")&ʿ #1,ʿ #8ʿ 9ʿ 'ʿ ")&ʿ #,' '. ʿ $'(ʿ")$"ʿ 8ʿ $'?ʿ #1+&6ʿ)#26ʿ ##%6ʿ +D#2736ʿ #
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")&ʿ #'" '1$'!&ʿ #8ʿ $'?ʿ +1!)ʿ $,ʿ $+ʿ $8#,&+$ (6ʿ @&ʿ #2&'ʿ * ") 'ʿ ")&ʿ
#',+ʿ)&,& 'B@&8#,&ʿ 2,#) @ "&(6ʿ 8#,ʿ $'?ʿ 51,2#+&ʿ #8ʿ 1+ '&++ʿ #,ʿ %1+&Bʿ > I/Eʿ C/ ʿ
%&'ʿ 'ʿ ")&ʿ 5-$!&ʿ *)&,&ʿ +1!)ʿ $,ʿ +)$--ʿ @&ʿ)&-(6ʿ #,ʿ * ") 'ʿ),&&ʿ " O73DG!ʿ ;
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$+"&,ʿ #,ʿ +",&++6ʿ #,ʿ #")&,ʿ 5&,+#'ʿ)$4 '.ʿ ")&ʿ $,&6ʿ H#4&,'%&'"6ʿ #,ʿ /D.IE #4ʿ 3 ʿ
$'$.&%&'ʿ #8ʿ $'?ʿ +1!)ʿ #1+&6ʿ)#26ʿ ##%6ʿ ##")6ʿ "$'('.6ʿ U=ʿ_ʿ7 +ʿ
&'"6ʿ $,$4$'6ʿ E$..#'6ʿ #,ʿ #")&,ʿ 5-$!&6ʿ $'(ʿ $-+#ʿ &4&,?ʿ 5&,+#'ʿ @& '.ʿ
")&,& '6ʿ $'(ʿ *)#ʿ +)$--ʿ '#ʿ C1 'ʿ ")&ʿ +$%&ʿ 8#,") * ")ʿ 12#'ʿ @& '.ʿ @ ((&'ʿ
@?ʿ $'?ʿ +1!)ʿ #'+"$@-&ʿ #,ʿ #")&,ʿ 5&$!&ʿ 88 !&,ʿ +#ʿ "#ʿ (#6ʿ $'(ʿ "#ʿ !#'4&?ʿ
&4&,?ʿ +1!)ʿ 5&,+#'ʿ +#ʿ "$:&'6ʿ $+ʿ +##'ʿ $+ʿ !#'4&' &'"-?ʿ %$?ʿ @&6ʿ @&8#,&ʿ
$ʿ R1+" !&ʿ #8ʿ ")&ʿ 5&$!&6ʿ *)#ʿ +)$--ʿ 2,#!&&(ʿ "#ʿ)&$,ʿ")&ʿ #%2-$ 'ʿ 'ʿ
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R1+" !&6ʿ $+ʿ ")&ʿ $+"&,6ʿ +",&++6ʿ #,ʿ 5&,+#'ʿ)$4 '.ʿ ")&ʿ $,&6ʿ H#4&,'N
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4 !"&(ʿ $+ʿ)$4 '.ʿ @&&'ʿ ")&,& '6ʿ $'(ʿ '#'ʿ)$4 '.ʿ C1 ""&(ʿ ")&ʿ +$%&ʿ 8#,")Bʿ
* ")ʿ 12#'ʿ @& '.ʿ @ ((&'ʿ @?ʿ $ʿ #'+"$@-&ʿ #,ʿ #")&,ʿ 5&$!&ʿ 88 !&,ʿ +#ʿ "#ʿ
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R1+" !&ʿ +)$--ʿ !#%%'ʿ) %ʿ #,ʿ)&,ʿ "#ʿ)$,(ʿ $@#1,ʿ 'ʿ ")&ʿ #1+&ʿ #8ʿ
#,,&!"#'ʿ 8#,ʿ $'?ʿ 2$!&ʿ #8ʿ %&ʿ '#'ʿ &9!&&('.ʿ),&&ʿ #'")+6ʿ
1'-&++ʿ ")&ʿ 5&'$-"?ʿ +)$--ʿ @&ʿ +##'&,ʿ 2$ ($'(ʿ 8ʿ ")&,&ʿ +)$--ʿ $22&$,ʿ A2 /Eʿ "D7Gʿ
"#ʿ $'?ʿ *#ʿ R1+" !&+6ʿ * ") 'ʿ ")&,ʿ,&+2&!"4&ʿ R1, +(!" #'+6ʿ &$+#'ʿ "#ʿ * ")#1" : *Bʿ
@& &4&ʿ ")$"ʿ $'?ʿ $,ʿ 1+1$--?ʿ)&-(ʿ * ") 'ʿ ")&ʿ 3 +"$'!&ʿ #8ʿ &'ʿ -&+ʿ * "-('ʿ &'A77
#8ʿ 5 * ʿ(ʿ)$+ʿ @&&'ʿ)&-(ʿ * ")#1"ʿ)$,"&,6ʿ 5,&+!, 2" #'6ʿ #,ʿ B 7DEʿ .ʿ
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@2 53' . @&' ,&%#4&(' @?' &," #,$,' '"#' +' $>&+"?;+' #1,"' #8' D '.;+' &'!)'
a /O!' /' /D^ @1"' ")$"' ' $--' $+&+' *)&,&' ")&' 5&'$-"?' +)$--' &9!&&(' ")&' 1%' #8' 4&'
0 F2O7D' O6' 5#1'(+' #,' '&' #'");+' %2, +#'%&'"6' 8' $'?' 5&,+#' ' +)$--' ") ':'
(D/3 /2/) %+&-8' $.., &4&(' @?' +1!)' #'4 !" #'6' +1!)' 5&,+#' ' %$?' $22&$-' "#'
7JCD2' 3 ' ")&' R1+" !&+' #8' ")&' 5&$!&' $"' ")&' '&9"' H&'&,$-' #,' T1$,"&,' &++ #'+'
YI2/3D/' DE ' #8' ")&' 5&$!&' "#' @&')&-(' 8#,' ")&' #1'"?' #,' "?' *)& B&)' ")&' $1+&'
E CE!' (#8' #%2-$ '" +)$--')$4&' $, +&'6' +1!)' 5&,+#' ' $"' ")&' %&' #8') +'
#'4 !" #' ' &'"&, '.' '"#' $' &!#.' L$'!&6' *")' *#' +188 ! &'"' 1,&N
" &+6' !#'(" #'&(' 2&,+#'$--?' "#' $22&$,' $"' ")&' +$ (' &++ #'+' "#' ",?' +1!)'
22&$-6' $'(' "#' $@ (&' ")&' 81,")&,' R1(.%&'"' #8' ")&' R1+" !&+' $"'
+1!)' &++ #'+' $++&%@-&(' $'(' "' +)$--' @&' -$*81-' 8#,' ")&' R1+" !&'
@&8#,&' *)#%' +1!)' #'4 !" #')$+' "$:&' 2-$!&' "#' @ '(' #4&,' ")&'
E "'&++&+' *)#' +)$--')$4&' @&&' &9$% '&(' ' 2,##8' #8' +1!)' 88&'!&'
' +188 ! &'"' &!#.' L$'!&+' "#' $""&'(' $'(' @&' &9$% '&(' $"' ")&'
)&$, '.' #8' +1!)' 22&$-6' $'(")$"' &47,?' +1!)' E "'&++6' #' ' 2,#(1! '.6'
$' &," 8 !$"&' #8') +' @& '.' +#' @#1'(' #4&,' 1'(&,' ")&' $'(' 8' +1!)'
R1+" !&6' +)$--' @&' $--#*&(' #%2&'+$" #' ' 8#,') +' %&' $'(' ,#1@-&' $'('
92&'!&+' ' $""&'('.' +1!)' 22&$-6' *) !)' #%2&'+$" #' ' +)$--' @&'
2$ (' @?' ")&' ,&$+1,&,' #8' ")&' #1'"?' ' - :&' $''&,' $+' ' $+&+' #8'
+(&%&$'#,' $!!#,('.' "#' $'(' 1'(&,' ")&' 5,#4 + #'+' #8' $' ' !"' 2$++&('
' ")&' &4&'")' &$,' #8' ")&' & .' #8' +' -$"&' $>&+"?6' '" "1-&('

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5,#4 (&(' $-*$?+6' ")$" ' !$+&' +1!)' 22&$-' +)$--' @&' (+% ++&(' $'(' +1!)' #'4 !" #'' $88 ,%&(6 ")&' ,&$+#'$@-&' 92&'!&+' #8'$--' +1!)' E "N '&++&+' $""&'('.' $+' $8#,&+$ (6 "#' @&' $+!&,"$ '&(' @?' ")&' #1,"6 +)$--' @&' 2$ (' @?' ")&' 22&--$'" #,' 22&--$'"+6 $'(' ")&' &!#.' L$'!&' #,' &N !#.' L$'!&+' +#' &'"&,&(' '"#' $+' $8#,&+$ (' +)$--' @&' &+",&$"&(6 1'-&++' +1!)' 92&'!&+' $,&' +#' 2$ (' @?' +1!)' 22&--$'" #,' 22&--$'"+

<' '(' @&' " 81,")&,' &'$!"&(')$" 8' $'?' 5&,+#'' +)$--' +D#2736'. /' M*-81–?' (&+",#?' #,' ($%$.&' #,' &'(&$4#1,' "#' (&+",#?' #,' ($%$.&6 #,' @&' * -81--?' !#'!&,'&(' '' (&+",#? '.' #,' ($%$. '.' #,' &'(&$4#1, '.' "#' OD7 #4 #4' 3 ' (&+",#?' #,' ($%$.&6 $'?' #$" #,' <&++&-' @&-#'. '.' "#' #,') ,&(' #,' "2 0 DE' &%2-#?&(' @?' #,' @?' ")&' 1")#, "?' #8' ")&' R1+" !&+' $22# '"&(' "#' $""&'(' $" ")&' 5 * '5#- !&' 88 !&6 #,' $'?' 5$," #8' ")&' $ -+6 $,+6 #,' #")&,' $!:-&6 "#,&+6 H##(+6 #,' 1,' "1,&' !#'"$ '&(' '' #,' @&-#'. '.' "#' $'?' +1!)' #$"#,' <&++&-6 &4&,?' 5&,+#'' +#' #88&'('.' +)$--' #'' #'4 !N "#'' ")&,&#8' @&8#,&' $' R1+" !&' #8' ")&' 5&$!&' 8#,8&" $'(' 2$?' 8#,' &4&,? #$" #,' <&++&-' +#' (&+",#?&(' #,' ($%$.&(' #,' $""&%2"&(' "#' @&' (&+",#?&(' #,' ($%$.&(6 #,' #8' *) !)' $'?' #8' ")&' $!:-&' #,' #")&,' #'"&'"+' +)$--')$4&' @&&'' +#' (&+",#?&(' #,' ($%$.&(' #,' $""&%2"&(' "#' @&' (&+",#?&(' #,' ($%$.&(6 $'?' 1%' '#" &9!&&('.') ,"?' 5#1'(+6 #,' +)$--' +188&,' %N 2, +#'%&'" 8#,' $'?' %&' '#" &9!&&('.'),&&' #'")+6 #4&,' $'(' $@#4&' $'?' +1!)' 3$%$.&+' $+' %$?' @&' ,&!#4&,$@-&' @?' !" #'' $" $*' $.$ '+" $'?' +1!)' 88&'(&,

<' '(' @&' " 81,")&,' &'$!"&(')$" " +)$--' @&' -$*81-' 8#,' &4&,?' I/FD6 /E' +1!)' 5 * '5#- !&' 1,4&?#,' X+1@>&!" "#' ")&' ,(&,+' #8' $'?' #8' ")&' +$ (' "2F #4' 5I E3' R1+" !&+' $22# '"&(' "#' $""&'(' ")&' 5 * '5#- !&' 88 !&[6)$4 '.' >1+" (2I ED' 3 ' E I E^ $1+&' "#' +1+2&!" ")$" $'?' &-#'?')$+' @&&'' #,' +' $@#1" "#' @&' !#%N CDH3' AD7 #6' % ""&(' '' #,' #'' @#$,(' #8' $'?') 26 #?6 $,.&6 .)"&,6 #$"6 #,' #")&,' 0 26' D#3D/' #' <&++&-' -? '.' #,' @& '.' '' ")&' +$ (' 4&,6 3#!:+6 #,' ,&&:+6 "#' &'"&,' O 2/G' DEED7E' $" $--' %&+6 $+' *&--' @?' .)" $+' @?' 3$?6 '"#' $'(' 12#'' &4&,?' +1!)' 2#G' 32]D' IC') 26 #?6 $,.&6 .)"&,6 #$"6 #,' #")&,' <&++&-6 $'(' ")&,& '' "#' "$:&' E I ECDH3DG' $--' '&!&++$,?' &$+1,&+' 8#,' ")&' &88&!"1$-' 5,&4&'" #'' #,' 3&"&!" #'' #8' $--' +D/E #E &-#' &+' *) !)')&')$+' >1+" $1+&' "#' +1+2&!" "#')$4&' @&&'' #,' "#' @&' $@#1" "#' @&' !#%% ""&(' '' $'(' 12#'' ")&' +$ (' 4&,6 3#!:+6 #,' ,&&:+6 $'(' "#' $22,&)&'(' $'(' (&"$ '' $--' 5&,+#'+' +1+2&!"&(' #8' @& '.' !#'!&,'&(' '' +1!)' &-#' &+6 $'(' $-+#' $--' 5,#2&,"?' +#' +1+2&!"&(' "#' @&' +"#-&'6 $'(' ")&' +$%&' "#' 2,#(1!&' @&8#,&' +#%&' R1+" !&6 "#' @&' (&$-" * ")' $!!#,('.' "#' $*

<' '(' @&' " 81,")&,' &'$!"&(6)$" " +)$--' @&' -$*81-' 8#,' #72Z.I7' &4&,?' +1!)' 5 * '5#- !&' 1,4&?#,6 $" $'?' %&' @&"*&&'' 1'B, + '.' Y I 2#3 3 DE' #8' $'(' 1'B+&"" '.6 "#' &'"&,' $'?') 2' #,' <&++&-' X&9!&2" +' $>&+"?;+) 2+['' ")&' +$ (' 4&,6 3#!:+6 $'(' ,&&:+6 $'(' "#' +&$,!)' ")&' +$%&' 8#,' +&L&(6 1'-$*81-' T1$'"" &+' #8' H1'2#*(&,6 $'(7$-+#' "#' &9&,!+&' ")&' +$%&' 5#*&,+' #8' +&L'.6 ,&%#4 '.' "#' 2 #2&,' 5-$!&+6 $'(' (&"$ ' '.' $--' +1!)' 1'-$*81-' T1$'"" &+' #8' H1'2#*(&,' 8#1'(' #'' @#$,(' $'?' +1!)') 2' #,' <&++&-6 $'(' ")&' $,&-+' #,' #")&,' 5$!:$.&+' '' *) !)' +1!)' H1'2#*(&,' +)$--' @&6 $+' $,&' . 4&'' "#' 5&,+#'+' +&$,!) '.' 8#,' 1'-$*81-' T1$'"" &+' #8' H1'2#*(&6 1'(&,' $' E $,$'" #8' $' R1+" !&6 @?' 4 ,"1&' #8' $'' !" 2$++&(' '' ")&' *&-8")' &$,' #8' ")&' &' .'' #8' D '.' ' ")&'),(6 '" "1-&(' ' ' ' ' * + ' + ' ' ' 7

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23E' /'
(2// 24DE'
"2F #4'E3 7D#'
+/ CD/36'O26'
OD'ED2/H"DG'
2#G'GD32 #DG%'
2#G' +D/E #E'
E I ECDH3DG' .'
"2F #4' E I H"'
GE' O26'
OD' 32]D#' OD^
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3 HD

< ' '('@&' "'81,")&,'&'$!"&(6')$"' "' +)$--' @&' -$*81-'8#,'$'?'
5 * ' 5#- !&' 1,4&?#,' #,' #'+"$@-&6' #,'$'?'#")&,' 5#- !&' #,' 5&$!&'
88 !&,6' * ") '' 8 +' R1, +(!" #'6' "#' +"#26' +&$,!)6' $'(' (&"$ '' '' +#%&'
5-$!&' #8' $8&"?' $'?' #$"6' ,$8"6' #,' <&++&-' *) !)' ")&,&' +)$--' @&'
&$+#'' "#' +1+2&!"' #8')$4 '.' #,' !#'4&? '.'@?' E $"&,6' $'(' $-+#' $'?'
$,"' #,' $,, $.&' *) !)' ")&,&' +)$--' @&' &$+#'' "#' +1+2&!"' #8')$4 '.' #,'
!#'4&? '.'#'' $'(6' $'?' H##(+6' $""&,6' #,') '.' +"#-&'' #,1'-$*8 --?'
#@"$ '&(6' $'(' $-+#' "#' $22,&)&'(6' +&$,!)6' $'(' (&"$ '' $'?' 5&,+#'' *)#'
%$?' @&' ,&$+#'$@-?' +1+2&!"&(' #8')$4 '.' #,' !#'4&? '.' '' $'?'
$''&,' $'?' H#C(+6' $""&,6' #,') '.' +"#-&'' #,' 1'-$*81--?' #@"$ '&(6'
$'(' "#' !#'4&?' &4&,?' +1&)' 5&,+#'' $+' +##'' $+' !#'4&' &'"-?' %$?')&6'
"#.&")&,' * ")' 1!)' H##(+6' $""&,6' #,') '.6' @&8#,&' +#%&' R1+" !&' #8' ")&'
5&$!&' $'(' 8' +1!)' 5&,+#'' +)$--' '#" . 4&' $'' !!#1''" "#' ")&' $" +8$!N
"#'' #8' +1!)' R1+" !&')#*')&' #8' +)&' !$%&' @?' ")&' +$%!>' +1!)' 5&,+#''
+)$--' @&' (&&%&(' $'(' $(>1(.&(' .1 -"?' #8' $' V+(&%&$'#46' $'(' +)$--'
+188&,' $+')&,& 'B$8"&,' %&'" #'&(' $'(' +1!)' #$"6' ,$8"6' #,' <&++&-6'
$,"' #,' $,, $.&6' +)$--' 12#'' +1!)' #'4 !" #'' @&' 8#,8& "&(' $'(' (+2#+&('
#8' $+' +')&,& 'B$8"&,' (,&!"&(' '

' '#' #. /02^
3 #' 3"23'
3"D/D' E' : $'
E #2O7D(2 ED'
. /' E I ECDH3^
#4' 3"23' 2 6'
GE!' H'
O FD' ODD#'
3 3 72Z. I 6'
O32 #DG!' #G'
2/D' H #^
HD27DG!' O Z'
3 ' C/ HDDG

<- A' '('@&' "'81,")&,'&'$!"&(6')$"' 8'#'' '8#,%$" #'' . 4&''
#'' $")' "' +)$--' $22&$,' "#' $'?' R1+" !&' ")$"' ")&,&' +' ,&$+#'$@-&' $1+&'
8#,' +1+2&!" '.' ")$"' $'?' H##(+6' $""&,6' #,') '.' +"#-&'' #8' 1'-$*81--?'
#@"$ '&(' $,&' #,' +' !#'!&$-&(' #,' #")&,* +&' -#(.&(' '' $'?' 3 *&-- '.'
5-#1+&6' E $,&)#1+&6' $,(6' H$,(&'6' #,' $'?' #")&,' 5-$!&6' "' +)$--' @&'
-$*81-' 8#,' +1!)' R1+" !&6' @?' +2&! $-' E $,,$'"' 1'(&,') +' $'(' V'(' &$-6'
(,&!"&(' "#' $'?' 5 * ' 5#- !&' 1,4&?#,' #,' #'+"$@-&' $+' $8#,&+$ (6'
#,' #")&,' #'+"$@-&' * ") '') +' R1, +(!" #'6' "#' !$1+&' &4&,?' +1!)' 5-$!&'
"#' @&' &'"&,&('$'(' +&$,!)&(' $"' $'?' %&' #8' ")&' 3$?6' #,' @?' .)"6' 8'
5#*7' 8#,' ")$"' 51,2#+&' @&' &+2&! $--?' . 4&'' '' $'(' @?' +1!)' E $,,$'"'
$'(' ")&' +$ (' R1+" !&6' 8' "' +)$--' $22&$,' "#') %' '&!&++$,?6' %$?' %#,&#4&,'
&%2#*&,' +1!)' 1,4&?#,' #,' #'+"$@-&6' * ")' $'?' +1!)' ++ +"$'!&' $+' "#'
")&' +$ (' R1+" !&' %$?' $22&$,6' #,' @?' +1!)' 1,4&?#,' #,' #'+"$@-&' %$?'
@&' 8#1'(' '&!&++$,?' 8+)' 1,4&?#,' #,' #'+"$@-&')$4 '.' 2,&4 #1+-?'
%$(&' :'#*'' +1!)') +' 1")#, "?[6' "#' 1+&' #,!&' 8#,' ")&' &88&!" '.' #8'
+1!)' '",?6' *)&")&,' @?' @,&$: '.' #2&'' 8-##,+' #,' #")&,* +&6' $'(' 8'
12#'' &$,!)' ")&,&12#'' %$(&' $'?' +1!)' H##(+6' $""&,6' #,') '.'
+)$--' @&' 8#1'(+' ")&'' "#' !#'4&?' ")&' +$%&' 8#,") * ")' "#' $'(' @&8#,&' $'
R1+" !&6' #,' "#' .1$,(' ")&' +$%&' #'' ")&' 2#' *) -&' ")&' 88&'(&,+' $,&'
"$:&'' @&8#,&' $' R1+" !&6' #,' #")&,* +&' (+2#+&' ")&,&#8' '' +#%&' 5-$!&' #8'
$8&"?6' +1@>&!"' "#' ")&' ,(&,+' #8' $' R1+" !&' '' %1''&,' $@#4&' %&'N
"#'&(6' $'(' %#,&#4&,' "#' $22,&)&'(' $'(' !#'4&?' @&8#,&' ")&' +$ ('
R1+" !&' ")&' 5&,+#'' #,' 5&,+#'+' '' *)#+&' #1+&6' #(. '.6' #,' #")&,'
5-$!&' ")&' +$%&' +)$)' +#')$4&' @&&'' 8#1'(6' $+' $-+#' &4&,?' #")&,' 5&,+#''
8#1'(' ''+1!)' #1+&6' -#(. '.6' #,' 5-$!&' *)#' 7$--' $22&$,' "#')$4&'
@&&''2, 4?' "#' ")&' (&2#+" '.' #8' +1!)' H##(+6' $""&,6' #,') '.' '' +1!)'
5-$!&6' :'#*' '.' #,')$4 '.' ,&$+#'$@-&' $1+&' "#' +1+2&!"' ")&' +$%&' "#'
)$4&' @&&'' +"#-&'' #,' #")&,* +&' 1'-$*81--?' #@"$ '&(' $'(' 8' +1!)'
5&,+#'' ,&+2&!" 4&-?' +)$--' '#" %%&($"&-?6' #,' * ") '' +#%&' ,&$+#'N
$@-&' %&' "#' @&' $++ .'&(' @?' ")&' R1+" !&6' %$:&' "' $22&$,' "#' ")&'
$" +8$!" #'' #8' ")&' R1+" !&' @?' *)$"' -$*81-' &$'+' +1!)' H##(+6' $""&,6
/

#,') ' .' !$%&' "#' @&' (&2#+ "&(' #,' + "1$"&(' '' +1!)' 5-$!&' $+' $8#,&+$ ('
* ")#1" $'?' 3&8$1-" #'' ")&' 5$," #8' +1!)' 5&,+#'+' ,&+2&!" 4&-?6' ")&''
$'(' '' +1!)' $+&' ")&' 5&,+#'' #,' 5&,+#'+' '' *)#+&' #1+&6' #(. ' .6' #,'
#")&,' 5-$!&' $'?' +1!)' +1+2&!"&(' H##(+6' $""&,6' #,') ' .' +)$--')$4&'
@&&'' 8#1'(6' $'(' $-+#' &4&,?' #")&,' 5&,+#'' +#' $22&$, ' .' "#')$4&' @&&''
2, 4?' "#' ")&' (&2#+ " ' .' ")&,&#86' : '#* ' .' #,')$4 ' .' $1+&' "#' +1+2&!"
")&' +$%&' "#')$4&' @&&'' +"#-&'6' #,' #")&, * +&' 1'-$*81--?' #@"$ '&(6' +)$--'
@&' (&&%&(' $'(' $(>1(.&(' .1 -"?' #8' $' +(&%&$'#,6' $'(' +)$--' +188&,' $+'
)&,& 'B$8"&,' %&'" #'&(
A

R ' '(' @&' "' 81,")&,' &'$!"&(6')$"' *)&'' $'?' 5&,+#'' +)$--' +2/36' ./ 0'
@&' @,#1.)" @&8#,&' +1!)' R1+" !&' !)$,.&(' * ")')$4 ' .' #,' !#'4&? ' .' Z" 0' E3 7D#'
$'?' +1!)' H##(+6' $""&,6' #,') ' .' +"#-&'' #,' 1'-$*81--?' #@"$ '&(6' $'(' GE' 2/D' /D^
+)$--' (&!-$,&') %+&-8' #,')&,+&-8' "#')$4&' ,&!& 4&(' ")&' +$%&' 8,#%' +#%&' HD FDG' 3 ' OD'
#")&,' 5&,+#'6' #,' "#')$4&' @&&'' &%2-#?&(' $+' $' $,, &,6' .&'"6' #,' &,4$'" D&2 O #DG' O6'
"#' !#'4&?' ")&' +$%&' 8#,' +#%&' #")&,' 5&,+#'6' +1!)' R1+" !&' +')&,&@?' 3"D' , I E3 HD
$1")#, L&(' $'(' ,&C1 ,&(' "#' !$1+&' &4&,?' +1!)' 5&,+#'6' $'(;$-+#6' 8'&!&+'
+$,?6' &4&,?' 2, #,' #,' 2,&"&'(&(' 51,!)$+&,6' #,' #")&,' 5&,+#'' "),#1.)'
*)#+&' 5#++&++#'' ")&' +$%&' +)$--')$4&' 2$++&(6' "#' @&' @,#1.)" @&8#,&') %'
$'(' &9$%' '&(6' $'(' "#' &9$%' '&' E "'&++&+' 12#'' $")' "#1!) ' .' ")&'
+$%&' $'(' 8' 12#'' ")&' *)#-&' 4 (&'!&' "' +)$--' $22&$,' "#' +1!)' R1+" !&' .' GE' 2/D'
")$"' $'?' 5&,+#'' +)$--')$4&')$(' 5#++&++#'' #8' +1!)' H##(+6' $""&,6' #,' I #72Z. I 776'
) ' .6' $'(')$4&')$(' ,&$+#'$@-&' $1+&' "#' @&- &4&' ")&' +$%&' "#')$4&' O32 #DG!'
@&&'' +"#-&'' #,' 1'-$*81--?' #@"$ '&(6' &4&,?' +1!)' 5&,+#'' +)$--' @&' (&&%&(' +2/36' GDD O DG'
$'(' $(>1(.&(' .1 -"?' #8' $' +(&%&$'#,6' $'(' +)$--' +188&,' $+')&,& 'N 41 736' .'2'
$8"&,' %&'" #'&(' ' $'(' &4&,?' +1!)' 5&,+#'' +)$--' @&' (&&%&(' "#')$4&' B EGD^
)$(' 5#++&++#'' #8' +1!)' H##(+6' $""&,6' #,') ' .' $"' ")&' %&' $'(' OD2# /
5-$!&' *)&'' $'(' *)&,&' ")&' +$%&' +)$--')$4&' @&&'' 8#1'(' #,' +&' L&(' + EEDEE #' .'
$'(' ")&' 5#++&++#'' #8' $' $,, &,6' .&'"6' #,' &,4$'" +)$--' @&' (&&%&(' D/F2#3'
"#' @&' ")&' 5#++&++#'' #8' ")&' 5&,+#'' *)#' +)$--')$4&' &%2-#?&(' +1!)' GDD O DG' + E^
#")&,' 5&,+#'' "#' !#'4&?' ")&' +$%&' EDEE #' .'
O C7 6D/

' '(' @&' "' 81,")&,' &'$!"&(6')$"' &4&,?' 5&,+#' *)#6' 8#,' ")&' A/2 O #4' 2'
51,2#+&' #8' 2,#"&!" ' .' #,' 2,&4&'" ' .' $'?' H##(+6' $""&,6' #,') ' .' .27ED' 77' .'
*)$"+#&4&,' 8,#%' @&' ' .' +&' L&(' #'' 1+2 ! #'' #8' ")&,' @&' ' .' +"#-&'' #,'
#")&, * +&' 1'-$*81--?' #@"$ '&(6' #,' #8' 2,&4&'" ' .' ")&' +$%&' 8,#%' @&' ' .' 3DH3 #'
2,#(1!&(' #,' %$(&' "#' +&,4&' $+' 4 (&'!&' #8' #,' !#'!&, ' ' .' $'?' &-#'?' GDD O DG' $
#,' +(&%&$'#,6' +)$--' 8,$%&' #,' !$1+&' "#' @&' 8,$%&(6' #,' @&' $'?* +&' B EGD '
!#'!&, '&(' '' 8,$% ' .' #,' !$1+ ' .' "#' @&' 8,$%&(6' $'?' --' #8' 5$,!&-+'
!#'"$ ' ' .' $'?' 8$-+&' "$"&%&'" '' ,&.$,(' "#' ")&' $%&' #,' @#(&'
#8' $'?' $--&.&(' <&'(#,6' ")&' T1$'" "?' #,' T1$- "?' #8' $'?' +1!)' H##(+6'
$""&,6' #,') ' .6' ")&' 5-$!&' 8,#%' *)&'!&' #,' ")&' #'4&?$'!&' @?'
*) !)' ")&' +$%&' *&,&' 81,' +)&(6' ")&' 5, !&' $.,&&(' 12#'' #,' !)$,.&(' 8#,'
")&' +$%&6' #,' $'?' #")&,' 5$," !1-$,6' : '#* ' .' +1!)' "$"&%&'" "#' @&'
8$-+&6' #,' *)#' +)$--' 8,$1(1-&'"-?' 2,#(1!&' +1!)' --' #8' 5$,!&-+' : '#* ' .'
")&' +$%&' "#')$4&' @&&'' 8,$1(1-&'"-?' 8,$%&(6' +)$--' @&' $(>1(.&(' .1 -"?'
#8' $' +(&%&$'#,6' $'(' +)$--' +188&,' $+')&,& 'B$8"&,' %&'" #'&(

' '(' @&' "' 81,")&,' &'$!"&(')$"' $'?' 5&,+#'' *)#' +)$--' @&' #72Z. I 776'
8#1'(' '' #,' 12#'' $'?' $'$-6' 3#! :6' E$,&)#1+&6' E)$,7' T1$?6' #,' " '
$' :6' #,' #'' @#$,(' $'?') 26' <&++&-6' #$"6' #,' ,$8"6' ' ' '+",1%&'"+6'
#,')&,' 5#++&++#'' $'?' 1@&' #,' #")&,' '+",1%&'" ' ' 51,2#+&' '$'(7$,,4 *^
1'-$*81--?' 2,#!1, ' .' #,' #@"$ ' ' .' $'?' E '&' 2 , "+6' #,' #")&,' C1#,+6' 7?' E '&8
H #,

H' GDDODG'
2 B EGD^
OD2# /

#,')$4 '.' '') +#,')&,'5#++&++ #'' $'?' :'6' -$((&,6' #,' #")&,' $N "&, $-' #,' V"&'+ -6' 8#,' ")&' 51,2#+&' #8' 1'-$*81--?' +&!,&" '.' #,' !$,,? '.' $*$?' $'?' +1!)' E '&6' 2 , "+6' #,' #")&,' C1#,+6' $'(' $'?' 5&,+#'' *)#' +)$--' $""&%2'' 1'-$*81--?' "#' 2,#!1,&' #,' #@"$ '' $'?' +1!)' E '&6' 2 , "+6' #,' #")&,' C" #,+6' +)$--' @&' (&&%&(' $'(' $(>1(.&(' .1 -"?' #8' $' +B' - &%&$1#,6' $'(' +)$--' +188&,' $+')&,& 'B$8"&,' %&'" #'&(

/D2] #4!'
H +2H]24DE!'
Z 3''' 2#' # '
3D#3' 37 23' 37 D'
(#3D#3E' O26'
OD' EC 77DG!'
GDDODG' 2
B EGD^
OD2# /

' '(' *)&,&$+6' 8#,' ")&' 51,2#+&' #8' '!,&$+ '.' ")&' $! - "?' #8' 3&2,&($" #'6' '')$")' @&&'' $' !#%%#'' 5,$!" !&' $%#'.' 5&,+#'+' !#'!&,'&(' '' ")&' -$'('.' $'(' *$,&)#1+ '.' #8' &,!)$'(L&' 8,#%' #'' @#$,(') 2+' $'(' <&++&-+' '' ")&7+$ (' 4&,' * -81--?' "#' '>1,&' $'(' 2,#N %#"&' ")&' #2&' '.' $'(' @,&$: '.' #8' $+:+6' $.+6' $'(' #")&,' 5$!:$.&+6' $'(' ")&' +2 -- '.' #8' ")&,' #'"&'"+' 8#,' &%&(?' ")&,&#8' @&' '' 81,")&,' &'$!"&(6')$'' 8' $'?' 5&,+#'' &%2-#?&(' '' ")&' -#$('.6' -$'('.6' ' *$,&)#1+ '.' #8' $'?' H##(+6' #,' $'?' #")&,' 5&,+#'6' +)$--' * -81--?' #,' "),#1.)' !1-2$@-&' &.- .&'!&' #,' $,&-&++'&++' !$1+&' #,' +188&,6' #,' @&' !#'!&,'&(' '' !$1+ '.' #,' +188&, '.6' "#' @&' @,#:&'6' @,1 +&(6' 2 &,&&(,' +"$,"&(6' !1"6' "#,'6' #,' #")&,* +&' '>1,&(6' $'?' $+:6' #96')&+"6' $.6' #,' #")&,' 5$!:$.&' !#'"$ ' '.' #,' @& '.' (&+ .'&(' $O(' 2,&2$,&(' 8#,' !#'"$ ' '.' $'?' H##(+' *) -&' #'' @#$,(' #8' $'?' $,.&6' .)"&,6' #,' #")&,' ,$8'' -? '.' #,' @& '.' '' ")&' +$ (' 4&,6' ,' $'?' 3#!:6' &&:6' T1$?' E)$,8' #,' $'('.' 5-$!&' $(>$!&''' "#' ")&' +$," &6' #8' '' ")&' E$?' "#' #,' 8,#%' $'?' E$,&)#1+&' "#' #,' 8,#%' *) !)' +1!)' 5$!:$.&' +)$--')$4&' @&&'' ,&' #4&(6' +)$--' @&' ,&"##4 '.6' #,' $@#1'' "#' @&' ,&%#4&(6' * ")' '"&''' ")$'' ")&' #'"&'"+' #8' +1!)' 5$!:$.&' #,' $'?' 5$,'' ")&,&#8' %$?' @&' +2 --&(' #,' (,#22&(' 8,#%' +1!)' 5$!:$.&6' &4&,?' 5&,+#'' +#' #88&'('.'+)$--' 8#,' &4&,?' +1!)' 88&'!&' @&' (&&%&(' $'(' $(>1(.&(' .1 -"?' #8' $' +(&%&$'#,6' $'(' +)$--' +188&,' $+')&,& 'B$8"&,' %&'" #'&(

@7.1776'
7D337*4' .277
/3 H7DE' #3 '
3"D' "2ODE!'
/' #3 ' 2
23!' H'
Z 3''' ./21G1^
7D#3' #3D#^
3 #!' GDDODG'
2 B EGD^
OD2# /

' ((' @&' '' 81,")&,' &'$!"&(6')$'' 8' 8#,' ")&' 51,2#+&' #8' 2,&4&'" '.' ")&' & L1,&' #,' 3 +!#4&,?' #8' $'?' $"&, $-+6' 51, ' "1,&' "#,&+6' #,' &,!)$'(L&' @&-#'. '.' "#' #,')$4 '.' @&&'' 5$," 8' ")&' $,.#' #8' $'?') 2' #,' <&++&- -? '.' '' ")&' +$ (' 4&,6' #,' ")&' 3#!:+' j,' ,&&:+' $(>$!&''' ")&,&"#6' #,' #8' $'?' #")&,' ," !-&+' 1'-$*81--?' #@"$ '&(' 88#%' $'?' +1!)') 2' #,' <&++&-6' $'?' +1!)' #,' $'?' #")&,' ," !-&' +)$--' @&' * -81--?' -&'' 8$--' #,' "),#*'' '"#' ")&' 4&,6' #,' '' $'?' #")&,' $''&,' (,&!"-?' #,' 21,2#+&-?' !#'4&?&(' $*$?' #,' &'(&$4#1,&(' "#' @&' !#'4&?&(' $*$?' 8,#%' $'?') 26' #$"6' $,.&6' .)"&,6' ,$8"6' E)$,8' T1$?6' #,' #")&,' $'('.' 5-$!&6' &<&,?' 5&,+#'' @& '.' 2$,"?6' 2, 4?6' #,' $!!&++$,?' "#' +1!)' -&'' '.' 8$--6' "),#* '.6' #,' !#'4&?$'!&6' #,' "#' $'?' 2,&4 #1+' '+",1!" #'+' #,' 2,&%&("$"&(' 3&+ .'' +#' "#' -&'' 8$--6' "),#*6' #,' !#'4&?' $*$?' $'?' +1!)' ," !-&' * ")' $V?' +1!)' 51,2#+&' $+' $8#,&+$ (6' +)$--' @&' (&&%&(' $'(' $(>1(.&(' .1 -"?' #8' $' +(&%&$'#,6' $'(' +188&,' $+')&,& 'A' $8"&,' %&'" #'&(' $'(' &4&,?' 5 * ' 5#- !&' 1,4&?#,6' #,' #'+"$@-&' #,' #")&,' 5&$!&' 88 !&,' * ") '') +'R1, +(!" #'6' +)$--' $22,&)&'(' $'(' (&"$ '' $'(' 8#,") * ")' !#'4&?' +1!)' 5&,+#'' @&8#,&' +#%&' R1+" !&6' $'(' +)$--' $-+#' +& L&' $'(' (&"$ '' $'?' #$'' '' *) !)' +1!)' 5&,+#'' +)$--' @&' 8#1'(6' #,' #1"' #8' *) !)' $'?' +1!)' ," !-&' +)$--' @&' +#' -&'' 8$--6' "),#*'6' #,' !#'4&?&(' $*$?' $'(' 12#'' ")&' #'4 !" #'' #8' +1!)' 5&,+#'6' +1!)' #$"6' * ")')&,' $!:-&6' 22$,&-6' 1,' "1,&6' $'(' #$('.6' +)$--' @&' 8#,8& "&(' $'(' (+N 2#+&(' #8' $+' +')&,& 'B$8"&,' (,&!"&(

$ B (2C /

< '(@& " 8 ,"- &, &'$!"&(6)$" 8#, &4&,? 88&'!&)&,& 'N
@&8#,& (&!-$,&("# @& $ +(&%&$'#,6 #, 8#, *) !) '# +2&! $- 5&'$-"?
+)&,& 'B@&8#,& $22# '"&(6 ")& 88&'(&, +)$--6 $" ")& 3 +!,&" #' #8 ")&
R1+" !& @&8#,& *)#% ")& #'4 !" #' +)$-- "$:& 2-$!&" & ")&, 8#,8& "
$'(2$? $'? 1% '#" &9!&&('. 4& 5#1'(+6 #, +188&, %2, +#'%&'"
8#, $'? %& '#" &9!&&('. *# P-#'")+6 * "- #, * (#1")$,(
$@#1,6 " $'? H$#- #, #1+& #8 #,,&!" #' * ") ' ")& R1, +(!" #'
#8 +1!) R1+" !& $'(' !$+& #8 ")& (>1(!$" #' #8 $ 2&!1' $,?
M5&'$-"?6 $'(#'2$?%&'" ")&,&#86 " +)$-- @& -$*81- 8#, +1!) R1+" !&
"# !#%% " ")& 88&'(&, "# $'? H$#- #, #1+& #8 #,,&!" #' 8#, ")&
- :& &,%6 1'-&++ +1!) 5&'$-"? +)$-- @& +##'&, 2$ ($'(#'& # &"?
#8 &4&,? +1!) 2&!1' $,? 5&'$-"?6 8 ,&!#4&,&(#, $(>1(.&(@&8#,& $'?
R1+" !& #, R1+" !&+ $" ")& +$ (51@- ! 88 !& ' (#, $" $'?
#8 ")& +$ (5#- !& 88 !&+6 +)$-- @& 2$ ("# ")& +$ (--&!& 4&, $+
$8#,&+$ (8#, ")& 51,2#+&+ #8 ") + !"6 $'(8 ,&!#4&,&(#, $(>1(.&(
' ")& "? #8 #, ")& @&," &+ ")&,&#86 +- $-- @& 2$ ("# ")&
)$%@&,-$ ' #8 ")& "? #8 8#, ")& %& @& '.6 $'(")&
#"- &, # &"? ")&,&#86 1'(&, ")& 3 ,&!" #' #8 "- & R1+" !& @? *)#%
")& +$%& +)$--)$4& @&&' $(>1(.&(6 +)$-- & ")&, @& 2$ ($'($22- &(
B"# ")& V+& #8 ")& '8#,%&, $-#'&6 #, @& (+", @1"&(@&"*&&' +1!)
5&,+#'+ $+ +)$--)$4& !#'", @1"&("# ")& #'4 !" #' #8 ")& 88&'(&,6
' +1!))$,&+ $'(5,#2#," #'+ $+ +1!) R1+" !& +)$-- ") ': 8 " $'(
")$" *)&' $'? ," !-&+ +)$-- @& +& L&(@? 4 ,"1& #8 ") + !"6 $'(")&
5&,+#' ' *)#+& 5#++&++ #' ")& +$%& +)$--)$4& @&&' 8#1'(+)$-- @&
!#'4 !"&(#8 $ +(&%&$'#, $+ $8#,&+$ (6 " +)$-- @& -$*81- 8#, ")&
R1+" !& @&8#,& *)#% ")& #'4 !" #' +)$-- "$:& 2-$!& "# !$1+& +1!)
," !-&+ "# @& $(4&," +&(' +#%& 21@- ! &*+2$2&,6 "# ")& &'(
")$" 5&,+#'+)$4 '. $.)" ")&,&"# %$? !-$% $'(,&!& 4& ")&
+$%& * ") ') ,"? 3$?+ 8,#% ")& 3$"& #8 +1!) (4&," +&%&'"6 '
")& $''&, $'(12#' ")& #'("#'+ (,&!"&(' $'(@? $" !" #8
")& &!#'(&$, #8 ")& & .' #8 D '. H&#,.& ")&), (6 '" "1-&(
** 5 1 " > H Q

(*2" ( )$%&+ $'(
8 '# 5&,+#' +)$-- 2,#4&) + 5,#2&,"? $'(.)" "# ")& +$ (," !-&+
* ") ' ")& +$ ( ) ,"? 3$?+6 ")& +$%& +)$-- @& +#-(8#, ")& @&+"
5, !& ")$" !$' ,&$+#'$@-? @& .#""&' 8#, ")& +$%& $'($8"&, (&(1!"N
'. ")&)$,.&+6 $!!#,('. "# ")& +$ (,&! "&(!"6 ")& &+ (1& #8
")& 5,#(1!& ")&,&#8 +)$-- @& 2$ ("# ")& +$ (&!& 4&, 8#,K")&
51,2#+&+ #8 ") + !"

A / ' D#HDE
GDH72/DG B E^
GD O D2# /E!
2#G . /Z7 H7
+D#2736
E 2CC #3DG
' ..D#GD/E
E"277 . /7D 3
3 D&HDDG
#EN V. ! / OD
O C/ E #DG
MZ 3" /
Z 3" I3 "2/G
2O I /P

/3 H7DE
ED dDG 3 OD
2GFD/3 EDG .
+D/E # H #^
F H3DG

< '(@& " 81,")&, &'$!"&(6)$" ' &4&,? $+& ' *) !)
#%2-$ '" +)$-- @& %$(& #8 $'? 88&'!& @? ") + !" (&!-$,&("# @& $
+(&%&$'#,6 #,6 #8 $'? 88&'!& "#1!) '. $'? #$" #, <&++&- @&B
-#'.%. "# #,) ,&(#, &%2-#?&(@? ")& R1+" !&+ $22# '"&("# $""&'(
$" ")& 5 * 5#- !& 88 !&6 ")& $""&, #8 +1!) #%2-$ '"6 8 ")&
88&'!& +)$--)$4& @&&' !#%% ""&(#, ")& 88&'(&, $22,&)&'(&(
* ") ' ")& R1, +(!" #' #8 ")& "? #8 %$? @&)&$,($'((&N
"&,% '&(@? ")& #,($?#,6 &!#,(&,6 #, #'& #8 ")& -(&,%&' #8
")& +$ ("?6 $'('#" &-+&*)&,& @1" 8 ")& 88&'!& +)$--)$4& @&&'
!#%% ""&(#, ")& 88&'(&, $22,&)&'(&(#1" #8 ")& +$ (R1, +(!" #'6
+1!) #%2-$ '" %$? @&)&$,($'((&"&,% '&(6 & ")&, @? #'& #8 ")&
R1+" !&+ $22# '"&("# ")& 5 * 5#- !& 88 !& $+ $8#,&+$ (6 #, @?
$'? #")&, R1+" !& * ") ' *)#+& R1, +(!" #' ")& 88&'!& +)$--)$4&
@&&'

..D#HDE)#*
"# @& 3/ DG

ʿ L B ʿ ʿ (2C

@&&'ʿ !#%% ""&('#,ʿ ")&ʿ 88&'(&,ʿ$22,&)&'(&(ʿ $'(ʿ&4&,?ʿ #'4 !"#"ʿ
8#,ʿ $'?ʿ +1!)ʿ 88&'!&ʿ +)$--ʿ @&ʿ !&,"8 &(6ʿ 8 -&(6ʿ $'(ʿ &'"&,&(ʿ 'ʿ +#!)ʿ
$''&,ʿ$+ʿ +ʿ (,&!"&(ʿ 'ʿ $'(ʿ @?ʿ")&ʿ +$ (ʿ-$+"B,&! "&(ʿ !'ʿ * ")ʿ ,&+2&!'ʿ
"#ʿ #'4 !"#>+ʿ 1'(&,ʿ ")$"ʿ !"6ʿ $'(ʿ %$?ʿ$-+#ʿ @&ʿ (,$*'ʿ12ʿ 'ʿ +)ʿ
#,%ʿ $'(ʿ $''&,6ʿ * ʿ * ʿ $+ʿ +ʿ $22# '"&(ʿ 'ʿ $'(ʿ @?ʿ ")&ʿ
+$%&ʿ !"ʿ $'(ʿ '&")&,ʿ +1!)ʿ #'4 !"#"ʿ '#,ʿ $'?ʿ 5,#!&&(7ʿ 2,&N
4 #1+ʿ ")&,&"#ʿ +)$--ʿ @&ʿ ,&%#4&(ʿ @?ʿ &,"#,$,ʿ #,ʿ #")&,* +&ʿ '"#ʿ $'?ʿ
#1,'ʿ #8ʿ &!#,(6ʿ @1'ʿ +1!)ʿ #'4 !"#"ʿ +)$--ʿ @&ʿ 8 '$-ʿ $'(ʿ !#'!-1+ 4&ʿ
"#ʿ $--ʿ '"&'"+ʿ $'(ʿ 51,2#+&+ʿ *)$"+#&4&,

B EGDOD2^ # /Eʿ I#GD/ʿ /DH 3DGʿ H3ʿ ʿ ʿ ʿHʿ Qʿ 3 ʿODʿ CI# E"^ DGʿ 23ʿ 3"D * EH/D3 #ʿ .ʿ 3"Dʿ , IE3 HDʿ

< ʿ '(ʿ *)&,&$+ʿ")&ʿ 51' +)%&'"+ʿ 8#,ʿ +(&%&$'#,+6ʿ 2,#4 (&(ʿ
'ʿ $'(ʿ @?ʿ")&ʿ +$ (ʿ-$+"B,&! "&(ʿ !'ʿ)$4&ʿ@&&'ʿ 8#1'(ʿ '+188 ! &'"8#,ʿ")&ʿ
2,&4&'" '.ʿ#8ʿ +1!)ʿ 88&'!&+ʿ @&ʿ "ʿ &'$!"&(7ʿ)$"ʿ &4&,?ʿ 5&,+#'ʿ *)#
+)$--ʿ @&ʿ .1 -"?ʿ #8ʿ$'?ʿ#8ʿ")&ʿ 88&'!&+ʿ ,&+2&!" 4&-?ʿ %$(&ʿ $'(ʿ (&!-$,&(ʿ
"#ʿ @&ʿ +(&%&$'#,+ʿ 'ʿ $'(ʿ @?ʿ")&ʿ +$ (ʿ !'%$?ʿ)&ʿ 21' +)&(6ʿ $"ʿ ")&ʿ
3 +!,&"#'ʿ #8ʿ ")&ʿ R1+" !&ʿ #,ʿ R1+" !&+ʿ @?ʿ #,ʿ @&8#,&ʿ *)#%ʿ ")&ʿ 88&'(&,ʿ
4X%%_Xʿ !#'4 !"&(6ʿ &")&,ʿ *ʿ ")ʿ ")&ʿ 51' +)%&'"ʿ $22# '"&(ʿ 'ʿ $'(ʿ @?ʿ
")&ʿ +$ (ʿ !"6ʿ #,ʿ @?ʿ +1!)ʿ #")&,ʿ 51' +)%&'"Q+ʿ +ʿ &,&@?ʿ $22# '"&(ʿ 'ʿ
$+&+ʿ #8ʿ 88&'!&+ʿ (&!-$,&(ʿ "#ʿ @&ʿ +(&%&$'#,+ʿ @?ʿ ")+ʿ 2,&+&'ʿ !"ʿ
$'(ʿ ")$"ʿ $--ʿ ")&ʿ 5#*&,+ʿ $'(ʿ 5,#4 + ##+ʿ#8ʿ ")&ʿ +$ (ʿ -$+"B,&! "&(ʿ !'ʿ
,&+2&!" '.ʿ ")&ʿ @+",1!" #'ʿ 28ʿ "+ʿ 9&!1" #'6ʿ $'(ʿ ")&ʿ #%%&'!&%&'ʿ
$'(ʿ 5,#+&!1" #'ʿ #8ʿ !" #'+ʿ $.$ '+'ʿ R1+" !&+6ʿ $'(ʿ ")&,ʿ 88 !&,+ʿ $!" '.ʿ
")&,&1'(&,6ʿ +)$--ʿ &9"&'(ʿ "#ʿ $--ʿ) '.+ʿ (#'&ʿ $'(ʿ "#ʿ $--ʿ 5&,+#'+ʿ $!" '.ʿ
1'(&,ʿ") +ʿ !"6ʿ $+ʿ 81--?ʿ $+ʿ 8ʿ ")&ʿ +$%&ʿ 5#*&,+ʿ $'(ʿ 5,#4 + #'+ʿ *&,&ʿ
)&,& 'ʿ ,&2&$"&(ʿ $'(ʿ ,&B&'$!"&(

A /.D 3DGʿ 23E! #E3D2Gʿ .ʿ OD #4ʿ @7,&+"7&(ʿ #,ʿ E 7Gʿ

< ʿ '(ʿ)&ʿ "81,")&,ʿ&'$!"&(ʿ)$"ʿ 'ʿ$E $+&+ʿ 'ʿ*) !)ʿ "ʿ +ʿ
(,&!"&(ʿ @?ʿ")&ʿ +$ (ʿ -$+"B,&C "&(ʿ !'ʿ ")$"ʿ $'?ʿ #$"6ʿ * ")ʿ)&,ʿ $!:-&ʿ
$'(ʿ 221,"&'$'!&+6ʿ *) !)ʿ +)$--ʿ @&ʿ 8#,8& "+6ʿ +)$--ʿ)&ʿ @1,'"ʿ $'(ʿ
(&+",#?&(6ʿ '+)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ $'?ʿ R1+" !&ʿ @&8#,&ʿ *)#%ʿ $'?ʿ 5&,+#'ʿ
+)$--ʿ '$4&ʿ @&&'ʿ !#'4 !"&(ʿ #8ʿ$'?ʿ 88&'!&ʿ *)&,&@?ʿ $'?ʿ #$"ʿ +ʿ #,ʿ
+)#1-(ʿ @&ʿ $(>1(.&(ʿ "#ʿ @&ʿ 8#,8& "&(ʿ 1'(&,ʿ ")$"ʿ !"6ʿ $'(ʿ $-+#ʿ 8#,ʿ $'?ʿ
R1+" !&ʿ @?ʿ *)#%ʿ $'?ʿ #$"ʿ +)$--ʿ @&ʿ $(>1(.&(ʿ "#ʿ @&ʿ 8#,8& "&(ʿ 1'(&,ʿ
") +ʿ !"6 "#ʿ (,&!"ʿ +1!)ʿ #$"6ʿ * ")ʿ)&,ʿ $!:-&ʿ $""(ʿ 221,"&'$'!&+6ʿ
8& ")&,ʿ "#ʿ @&ʿ @1,'"ʿ $'(ʿ (&+",#?&(6ʿ #,ʿ "#ʿ @&ʿ ,&+"#,&(ʿ "#ʿ ")&ʿ *'&,+ʿ
")&,&#8ʿ #,ʿ "#ʿ @&ʿ 21@- !-?ʿ +#-(6ʿ $'(ʿ ")&ʿ 5,#(1!&ʿ #8ʿ +1!)ʿ $-&ʿ "#ʿ @&ʿ
$22- &(ʿ 'ʿ - :&ʿ $''&,ʿ$+ʿ #")&,ʿ #,8& "1,&+ʿ 1'(&,ʿ") +ʿ !"

+D#2736ʿ #ʿ B2E3D/Eʿ .ʿ DEED7Eʿ OD^ 3ZDD#ʿ DE3ʿ O #E3D/ʿ / G4Dʿ 2#Gʿ 72H] Z27ʿ "2F #4ʿ #ʿ 7J 2/Gʿ I#Eʿ 7 2GDGʿ Z 3"ʿ 277!ʿ /ʿG Eʿ D732 % .%ʿ I#Eʿ OD. /Dʿ I# / E #4ʿ /ʿ 2.3D/ʿ I#^ ED33 #4!ʿ /ʿ 7 D23 #4+2/ʿ 2#G 3"D/ʿ H OOIE3 O7D

< ʿ '(ʿ8#,ʿ")&ʿ%#,&ʿ&8 &!"1$-ʿ 5,&4&'"#'ʿ#8ʿ !! (&'"+ʿ@?ʿ ,&ʿ
$'(ʿ#")&,ʿ +!) &8+ʿ 12#'ʿ")&ʿ +$ (ʿ 4&,6ʿ @&ʿ "81,")&,ʿ&'$!"&(ʿ)$"ʿ
8ʿ $'?ʿ $+"&,ʿ#,ʿ #%%$'(&,ʿ#,ʿ#")&,ʿ 88 !&,ʿ #8ʿ$'?ʿ)2ʿ#,ʿ <&++&-ʿ
X&9!&2"ʿ +ʿ $>&+"?;+ʿ)2+[ʿ +)$--6ʿ *) -&ʿ +1!)ʿ)2ʿ #,ʿ <&++&-ʿ +)$--ʿ
- &ʿ#,ʿ @&ʿ 'ʿ")&ʿ +$ (ʿ 4&,ʿ @&"*&&'ʿ / * * (ʿ$'(ʿ (+ +#* ʿ
:&&2ʿ $'?ʿ H1'ʿ #'ʿ @#$,(ʿ+1!)ʿ)2ʿ #,ʿ <&++&-ʿ +)#""&(ʿ #,ʿ -#$(&(ʿ * ")ʿ
$--6ʿ #,ʿ !$1+&ʿ #,ʿ 2&,% 'ʿ "#ʿ @&ʿ 8 ,&(ʿ #,ʿ (+!)$,.&(ʿ $'?ʿ H1'ʿ #'ʿ @#$,(6ʿ
+1!)ʿ)2ʿ #,ʿ <&++&-ʿ @&8#,&ʿ 1'B, + '.ʿ #,ʿ $8"&,ʿ 1'B+&"" 2.6ʿ +1!)ʿ
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,&$+#'ʻ #8ʻ7'?ʻ '&*ʻ #%% ++ #'ʻ 'ʻ ")$"ʻ &)$-8ʻ %$(&6ʻ #,ʻ @?ʻ =E,"ʻ #8ʻ 12&,+&(&$+ʻ (&- 4&,&(ʻ #1"ʻ #8ʻ ")&ʻ D '.;+ʻ #1,"ʻ #8ʻ)$'!&,?6ʻ (+N !)$,. '.ʻ $'?ʻ+1!)ʻ #%% ++ #'ʻ #,ʻ #%% ++ #'+

< ʻ '(ʻ @&ʻ "ʻ 81,")&,ʻ &'$!"&(6ʻ)$"ʻ $--ʻ $*+6ʻ !"+6ʻ 3&!,&&+6ʻ #'+" "1" #'+6ʻ $'(ʻ ,('$'!&+ʻ %$(&ʻ #,ʻ "#ʻ @&ʻ '$(&ʻ@?ʻ $'?ʻ #1,"ʻ #8ʻ &*&,+6ʻ $'(ʻ (1-?ʻ ,&. +"&,&(ʻ 'ʻ ")&ʻ #--+ʻ #,ʻ ##:+ʻ #8ʻ+1!)ʻ #1,"ʻ @?ʻ ")&ʻ -&,:ʻ "#ʻ ")&ʻ #%% ++ #'6ʻ +)$--ʻ !#'" '1&ʻ 'ʻ 81--ʻ #,!&ʻ $'(ʻ 88&!"6ʻ '#"* ")+"$'('.ʻ ")&ʻ 92 ,$" #'6ʻ &2&$-6ʻ #,ʻ #")&,ʻ 3&"&,% '$" #'ʻ #8ʻ ")&ʻ #%% ++ #'ʻ 1'(&,ʻ *) !)ʻ +1!)ʻ $*+6ʻ !"+6ʻ 3&!,&&+6ʻ #'+ "1Bʻ "#'+6ʻ $'(ʻ ,('$'!&+ʻ +)$--ʻ)$4&ʻ @&&'ʻ ,&+2&!" 4&-?ʻ %$(&6ʻ $'(ʻ '#"N * ")+"$'('.ʻ ")&ʻ +$%&ʻ ,&+2&!" 4&-?ʻ +)$--ʻ '#"ʻ)$4&ʻ @&&'ʻ '.,#++&(ʻ #,ʻ *,""&'ʻ 'ʻ 5$,!)%&'"6ʻ $'(ʻ 1'(&,ʻ ")&ʻ &$-+ʻ #8ʻ ")&ʻ #%% ++ #'&,+ʻ #,ʻ $'?ʻ 9ʻ #8ʻ")&%6ʻ $'(ʻ '#"* ")+"$'('.ʻ ")&ʻ #'&ʻ 5$ "ʻ ")&,&#8ʻ +)$--ʻ '#"ʻ ,&%$ 'ʻ * ")ʻ")&ʻ -&,:ʻ "#ʻ ")&ʻ #%% ++ #'6ʻ $'(ʻ ")&ʻ #")&,ʻ 5$,"ʻ 'ʻ +1!)ʻ 5-$!&ʻ $+ʻ ")&ʻ +$ (ʻ #%% ++ #'&,+ʻ #,ʻ 9ʻ #8ʻ")&%ʻ +)$--ʻ #,(&,ʻ#,ʻ $22# '"6ʻ $'(ʻ '#"* ")+"$'('.ʻ ")&ʻ +$%&ʻ +)$--ʻ '#"ʻ @&ʻ !&," 8 &(ʻ '"#ʻ ")&ʻ D '.;+ʻ #1,"ʻ #8ʻ)$'!&,?6ʻ $'(ʻ ")&ʻ D '.;+ʻ #?$-ʻ ++&'"ʻ)$(ʻ ")&,&"#ʻ ,&+2&!N "4&-?6ʻ 1'"-ʻ ")&ʻ +$%&ʻ $*+6ʻ !"+6ʻ 3&!,&&+6ʻ #'+" "1" #'+6ʻ $ 1-ʻ (Bʻ '$'!&+ʻ +)$--ʻ @&ʻ $-"&,&(6ʻ ,&2&$-&(6ʻ #,ʻ %$(&ʻ 4# (ʻ @?ʻ $'?ʻ +1@+&C1&'"ʻ #1,"ʻ #,ʻ #1,"+ʻ #8ʻ &*&,+ʻ 'ʻ ")#+&ʻ 5$,"+ʻ #,ʻ % "+ʻ *)&,&ʻ ")&ʻ +$%&ʻ $*+6ʻ 3&!,&&+6ʻ $'(ʻ ,('$'!&+ʻ *& &ʻ #,ʻ +)$--ʻ @&ʻ %$(&ʻ $'(ʻ#,($ '&(6ʻ #,ʻ @?ʻ $'?ʻ 9ʻ #8ʻ")&%

2ZE!ʻ *D^ H/DDE!ʻ 2#Gʻ '/G #2#HDEʻ 3ʻH #3 #IDʻ #ʻ. /HDʻ # 3ʻ Z 7 E32#G I 5ʻ &C /23 #ʻ .ʻ (O# EE #!ʻ 2#Gʻ 273" I4"ʻ # 3ʻ #4/ EEDGʻ #ʻ +2/H"^ OD#3!ʻ /ʻ# 3ʻ HD/3 . DGʻ #3ʻ 3"Dʻ (I/3ʻ .ʻ (O#DD/F

< ʻ '(ʻ @&ʻ "ʻ 81,")&,ʻ &'$!"&(ʻ)$"ʻ "ʻ+)$--ʻ @&ʻ -$*81-ʻ 8#,ʻ")&ʻ+$ (ʻ =D41723 #Eʻ #%% ++ #'&,+ʻ #,ʻ $'?ʻ),&&ʻ #,ʻ %#,&ʻ #8ʻ")&%6ʻ #,ʻ 8#,ʻ")&,ʻ -&,:ʻ 12#'ʻ -&&"ʻ ")&ʻ 3 ,&!" #'ʻ 'ʻ E," '.ʻ #8ʻ$'?ʻ),&&ʻ #,ʻ %#,&ʻ #8ʻ ")&ʻ +$ (ʻ #%% +Bʻ ;=.+?8 #%Bʻ +#'&,+ʻ X$'(ʻ *" !)ʻ)&ʻ +ʻ)&,&@?ʻ ,&C1 ,&(ʻ "#ʻ (#ʻ #'ʻ +1!)ʻ 3 ,&!" #'[6ʻ 7 "#ʻ $22# '"ʻ ")&ʻ ,+"ʻ &&" '.ʻ #8ʻ "- &ʻ +$ (ʻ #%% ++ #'&,+ʻ $8"&,ʻ ")&ʻ >[$++ '.ʻ #8ʻ ") +ʻ !"ʻ $"ʻ +1!)ʻ %&ʻ $'(ʻ 5-$!&ʻ $+ʻ "#ʻ ")&%ʻ +)$--ʻ +&&%ʻ %&&"6ʻ $'(ʻ #8ʻ*) !)ʻ &&" '.ʻ &'ʻ !-&$,ʻ 3$?+ʻ 2,&4 #1+ʻ #" !&ʻ+)$--ʻ @&ʻ . 4&'6ʻ @?ʻ (4&,"+&%&'"ʻ 'ʻ +#%&ʻ &*+2$2&,ʻ #8ʻ ")&ʻ #1'"?6ʻ $'(ʻ .&'&,$--?ʻ ! ,!1-$"&(ʻ 'ʻ $"ʻ 3 +", !"ʻ")&,&#8ʻ $'(ʻ "ʻ+)$--ʻ @&ʻ -$*81-ʻ 8#,ʻ ")&ʻ+$ (ʻ #%% ++ #'&,+ʻ 8,#%ʻ %&ʻ "#ʻ %&ʻ "#ʻ %&&"ʻ $"ʻ +1!)ʻ %&ʻ$'(5-$!&6ʻ $'(ʻ "#ʻ $(>#1,'ʻ "#ʻ %&&"ʻ $"ʻ $'?ʻ 5-$!&ʻ #,ʻ 5-$!&+ʻ $'(ʻ $"ʻ +1!)ʻ %&ʻ #,ʻ %&+ʻ $+ʻ ")&ʻ +$ (ʻ #%% ++ #'&,+ʻ #,ʻ ")&ʻ %$>#,ʻ 5$,"ʻ #8ʻ ")&%ʻ 2,&+&'"ʻ $"ʻ $'?ʻ &&" '.ʻ +-$--ʻ $22# '"ʻ ʻ $'(ʻ '#ʻ ,(&,ʻ #,ʻ 3&"&,% '$" #'ʻ +)$--ʻ @&ʻ %$(&ʻ 1'-&++ʻ ")&ʻ %$>#,ʻ 5$,"ʻ #8ʻ ")&ʻ #%N % ++ #'&,+ʻ 2,&+&'"ʻ +)$--ʻ !#'!1,ʻ")&,&ʻ 'ʻ ʻ $'(ʻ $--ʻ !"+6ʻ ,(&,+6ʻ $'(ʻ 5,#!&&('.+ʻ)$(ʻ (,&!"&(ʻ #,ʻ L&(ʻ "#ʻ)&ʻ %$(&6ʻ (#'&6ʻ #,ʻ &9&,! +&(ʻ @?ʻ #,ʻ @&8#,&ʻ ")&ʻ +$ -ʻ #%% ++ #'&+6ʻ $'(ʻ $-ʻ ")&ʻ 5#*&,+ʻ $'(ʻ 1")#, "ʻ &+ʻ 4&+"&(ʻ 'ʻ ")&%6ʻ +)$--ʻ $'(ʻ %$?ʻ @&ʻ %$(&6ʻ (#'&6ʻ $'(ʻ &9&,! +&(ʻ @?ʻ "ʻ &ʻ %$>#,ʻ 5$,"ʻ #8ʻ "-&ʻ #%% ++ #'&,+ʻ *)#ʻ +)$--ʻ @&ʻ 2,&+&'"ʻ $"ʻ +1!)ʻ ,&+2&!" 4&ʻ &&" '.ʻ ")&ʻ *)#-&ʻ 1%@&,ʻ 2,&+&'"ʻ '#"ʻ@& '.ʻ -&++ʻ"-4$'ʻ 9ʻ ʻ $'(ʻ $--ʻ !"+6ʻ ,(&,+6ʻ$'(ʻ5,#!&&('.+ʻ %$(&6ʻ (#'&6ʻ #,ʻ &9&! 1"&(ʻ @?ʻ #,ʻ @&8#,&ʻ +1!)ʻ 9ʻ #%% ++ #'&,+ʻ +)$--ʻ)$4&ʻ ")&ʻ +$%&ʻ #,!&ʻ $'(ʻ 88&!"ʻ $'(ʻ @&ʻ $+ʻ @ '('.ʻ $'(ʻ !#'!-1+ 4&ʻ #'ʻ $--ʻ 5&,+#'+ʻ "#ʻ *)#%ʻ ")&ʻ+$%&ʻ $'(ʻ 51,2#+&+ʻ E)$"+#&4&,6ʻ $+ʻ 81--?ʻ $'(ʻ &88&!N "1$--?ʻ $+ʻ 8ʻ")&ʻ +$%&ʻ *&,&ʻ %$(&6ʻ (#'&6ʻ #,ʻ &9&!1"&(ʻ @?ʻ #,ʻ @&8#,&ʻ ")&ʻ *)#-&ʻ #8ʻ")&ʻ +$ (ʻ #%% ++ #'&,+ʻ $'(ʻ$ʻ)$,%$'ʻ +)$--ʻ $'(ʻ %$?ʻ 'ʻ ")&ʻ 8 ,+"ʻ 2-$!&ʻ @&ʻ $22# '"&(ʻ $"ʻ &4&,?ʻ &&" '.ʻ @?ʻ$ʻ $>#, "?ʻ #8ʻ ")&ʻ <#"&+ʻ #8ʻ")&ʻ 5&,+#'+ʻ 2,&+&'"ʻ *)#ʻ !$+&ʻ #8ʻ $'ʻ &C1$-ʻ 1%@&,ʻ #8ʻ 8ʻ ʻ <#"&+

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<#"&+ˢ X '!-1('.ˢ ")&ˢ)$,%$';+ˢ <#"&[ˢ +)$--ˢ)$4&ˢ ")&ˢ !$+" '.ˢ #";
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CDH 27B DD3ˢ ˢ '(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(6ˢ)$"ˢ 8ˢ $8"&,ˢ $'?ˢ (>#1,'%&'"ˢ #8ˢ
DE &&" '.A#8ˢ")&ˢ +$ (ˢ #%% ++ #'&,+ˢ "ˢ +)$--ˢ #'ˢ $'?ˢ %&,.&'!?ˢ @&ˢ
'*@7!$--&(ˢ #'+ (&,&(ˢ '&!&++$,?ˢ #,ˢ $(4 +$@-&ˢ ")$"ˢ $ˢ 2&! $-ˢ &&" '.ˢ +)#1-(ˢ @&ˢ
D *2IEˢ $22# '"&(ˢ 8#,ˢ $'ˢ &$,- &,ˢ 3$?ˢ ")$'ˢ ")&ˢ 3$?ˢ 8#,ˢ *) !)ˢ $'?ˢ &&" '.ˢ
#" !&ˢ +)$--ˢ +"$'(ˢ @?ˢ (>#1,'%&'"ˢ $+ˢ $8#,&+$ (6ˢ ")&'ˢ $'(ˢ 'ˢ +1!)ˢ $+&ˢ "ˢ
+)$--ˢ @&ˢ -$*81-ˢ 8#,ˢ ")&ˢ +$ (ˢ #%% ++ #'&,+ˢ #,ˢ $'?ˢ),&&ˢ #,ˢ %#,&ˢ #8ˢ
")&%6ˢ #,ˢ 8#,ˢ ")& ,ˢ -&,:ˢ 12#'ˢ ")&ˢ 3 ,&!" #'ˢ 'ˢ <<, "'.ˢ #8ˢ $'?ˢ),&&ˢ
#,ˢ %#,&ˢ #8ˢ ")&ˢ +$ (ˢ #%% ++ #'&,+ˢ X$'(ˢ *) !)ˢ)&ˢ +ˢ)&,&@?ˢ ,&">1 ,&(ˢ
"#ˢ (#ˢ #'ˢ +1!)ˢ 3 ,&!" #'[6ˢ "#ˢ $22# '"ˢ $ˢ 2&! $-ˢ &&" '.ˢ 8#,ˢ $'ˢ &$,- &,ˢ
3$?6ˢ $'(ˢ #8ˢ *) !)ˢ &&" '.6ˢ $'(ˢ #8ˢ ")&ˢ %&ˢ $'(ˢ 51,2#+&ˢ ")&,&#8ˢ
&'ˢ !-&$,ˢ 3$?+ˢ 2,&4 #1+ˢ #" !&ˢ +)$--ˢ @&ˢ . 4&'ˢ @?ˢ (4&," +&%&'"ˢ 'ˢ
+#%&ˢ &*+2$2&,ˢ #8ˢ ")&ˢ #1'"?6ˢ $'(ˢ .&'&,$--?ˢ ! ,!1-$"&(ˢ 'ˢ ")$"ˢ
3 +", !"ˢ ")&,&#8ˢ $'(ˢ '#ˢ #")&,ˢ 1+ '&++ˢ +)$--ˢ @&ˢ ",$'+$!"&(ˢ #'ˢ $'?ˢ
+1!)ˢ 2&! $-ˢ &&" '.ˢ @1"ˢ ")$"ˢ *) !)ˢ +)$--ˢ)$4&ˢ @&&'ˢ +2&! 8 &(ˢ 'ˢ
' 7 HD/32 # +1!)ˢ #" !&ˢ $+ˢ $8#,&+$ (ˢ] 5,#4 (&(ˢ '&4&,")&-&++6ˢ ")$"ˢ 'ˢ ")&ˢ &4&'"ˢ #8ˢ
'HH2E #E $'?ˢ %% '&'"ˢ 3$'.&,ˢ @& '.ˢ $22,&)&'(&(ˢ 8,#%ˢ 1'1+1$--?ˢ) .)ˢ (&+ˢ
CDH 27B DD3 #,ˢ $ # ") & ,ˢ $1+&6ˢ $'(ˢ ")$"ˢ 'ˢ ")&ˢ R1(.%&'"ˢ #8ˢ *#ˢ #,ˢ ,2#,&ˢ #8ˢ
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,(&,ˢ #8 ")&ˢ 3&-$?ˢ #8ˢ &'ˢ !-&$,ˢ 3$?+ˢ 2,&4 #1+ˢ #" !&ˢ #8ˢ $ˢ 2&! $-ˢ 8&&" '.4ˢ
Z ˢ (0^ "ˢ +)$--ˢ $'(ˢ %$?ˢ @&ˢ -$*81-ˢ 8#,ˢ $'?ˢ *#ˢ #,ˢ %#,&ˢ #8ˢ")&ˢ +$ (ˢ #%%"+Aˢ
0 EE #D/E + #'&,+6ˢ #,ˢ 8#,ˢ ")& ,ˢ -&,:ˢ 12#'ˢ ")&ˢ 3 ,&!" #'ˢ 'ˢ E, "'.ˢ #8ˢ $'?ˢ *#ˢ
2 E" /3D/ #,ˢ %#,&ˢ #8ˢ")&ˢ +$ (ˢ #%% ++ #'&,+ˢ X$'(ˢ *) !)ˢ)&ˢ +ˢ)&,&@?ˢ ,&C1 ,&(ˢ
) 3 HD "#ˢ (#ˢ #'ˢ +1!)ˢ 3 ,&!" #'[6ˢ "#ˢ !#'4&'&6ˢ @?ˢ ,!1-$,ˢ &""&,ˢ +&'"ˢ"#ˢ &$! ˢ
$!" '.ˢ #%% ++ #'&,6ˢ $ˢ 2&! $-ˢ &&" '.ˢ 8#,ˢ $+ˢ &$,-?ˢ $ˢ 3$?ˢ $+ˢ ")&ˢ
+$ (ˢ *#ˢ #,ˢ %#,&ˢ #%% ++ #'&,+ˢ +)$--ˢ ") ':ˢ 8 "ˢ 'ˢ ")& ,ˢ 3 +&,&""*ˢ
"#ˢ $22# '"6ˢ +1!)ˢ &""&,+ˢ "#ˢ +2&! 8?ˢ ")&ˢ 2$," !1-$,ˢ @>&!"ˢ 8#,ˢ *) !)ˢ
+1!)ˢ &&" '.ˢ +ˢ #'4&,"&(ˢ $'(ˢ '#ˢ 1+ '&++ˢ +)$--ˢ @&ˢ ",$'+$!"&(ˢ
")&,&$"ˢ @1"ˢ ")$"ˢ *) !)ˢ +", !"-?ˢ ,&-$"&+ˢ "#ˢ +1!)ˢ @>&!"

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.ˢ DZD/E R1, +(!"#'ˢ #8ˢ #%% ++ #'&,+ˢ #8ˢ &*&,+ˢ @&ˢ "ˢ ")&,&8#,&ˢ 81,")&,ˢ
2#G 3"D/ &'$!"&(ˢ $'(ˢ (&!-$,&(ˢ)$"ˢ $--ˢ E$--+6ˢ $':+6ˢ 1-4&,"+6ˢ $'(ˢ #")&,ˢ
@ /]E I#GD/ 3&8&'!&+ˢ *)$"+#&4&,6ˢ *)&")&,ˢ '$"1,$-ˢ #,ˢ $8" 8 ! $-6ˢ + "1$"&ˢ #,ˢ @& '.ˢ
3"D ,I/ EG H^ @?ˢ ")&ˢ #$+"+ˢ #8ˢ")&ˢ &$6ˢ $'(ˢ $--ˢ 4&,+6ˢ ",&$%+6ˢ &*&,+6ˢ $'(ˢ E$"&,N
3 # .ˢ(0ˢ !#1,+&+ˢ *) !)ˢ '#*ˢ $,&ˢ #,ˢ)&,&$8"&,ˢ +)$--ˢ #,ˢ %$?ˢ @8&ˢ '$4 .$@-&6ˢ #,ˢ 'ˢ
0 EE #D3E . *) !)ˢ ")&ˢ (&ˢ '#*ˢ (#&+ˢ #,ˢ)&,&$8"&,ˢ +)$--ˢ #,ˢ %$?ˢ &@@ˢ $'(ˢ 8-#*6ˢ #,ˢ
DZD/E *) !)ˢ '#*ˢ (#ˢ #,ˢ)&,&$8"&,ˢ +)$--ˢ #,ˢ %$?ˢ (,&!"-?ˢ #,ˢ '(,&!"-?ˢ !#%N
%1' !$"&ˢ *")ˢ $'?ˢ +1!)ˢ $4 .$@-&ˢ #,ˢ (&ˢ 4&,6ˢ ",&$%6ˢ #,ˢ &*&,6ˢ
$'(ˢ $--ˢ E$--+6ˢ $':+6ˢ 1-4&,"+6ˢ ,(.&+6ˢ 3$%+6ˢ -##(.$"&+6ˢ $'(ˢ #")&,ˢ
E#,:+ˢ &,&!"&(ˢ #,ˢ "#ˢ @&ˢ &,&!"&(ˢ '6ˢ 12#'6ˢ #4&,6ˢ #,ˢ $(>#' '.ˢ "#ˢ $'?ˢ
+1!)ˢ 4&,+6ˢ ",&$%+6ˢ &*&,+6ˢ #,ˢ E$"&,!#1,+&+6ˢ +)$--ˢ @&ˢ 8,#%ˢ)&'!&N
8#,")6ˢ "#ˢ $--ˢ '"&'"+6ˢ #'+",1!"#'+6ˢ $,>(ˢ 51,2#+&+6ˢ *") 'ˢ $'(ˢ +1@>&!"
"#ˢ ")&ˢ R1, +(!"#'ˢ #8ˢ #%% ++ #'&,+ˢ #8ˢ &*&,+]ˢ 5,#4 (&(ˢ $-*$?+6ˢ
")$"ˢ '#") '.ˢ)&,& 'ˢ !#'"$ '&(ˢ +)$--ˢ $1")#, L&ˢ #,ˢ &%2#*&,ˢ $'?ˢ #%N
% ++ #'&,+ˢ #8 &*&-;+ˢ "#ˢ &9&,! +&ˢ 1")#, "?ˢ #,ˢ R1, +(!"#'ˢ 12#'ˢ #,ˢ
#4&,ˢ $'?ˢ 3$%+6ˢ -##(.$"&6ˢ #,ˢ #")&,ˢ E#,:+ˢ &,&!"&(ˢ 8#,ˢ ")&ˢ 51,2#+&ˢ
#8ˢ ,'$%&'"6ˢ 2,&4 #1+ˢ "#ˢ ")&ˢ 2$++ '.ˢ #8ˢ") +ˢ !"6ˢ '6ˢ 12#'6ˢ #4&,ˢ
$'?ˢ 4&,+6ˢ ",&$%+6ˢ 3 "!)&+6ˢ H1""&,+6ˢ &*&8+6ˢ #,ˢ E$"&,!#1,+&+ˢ '&$,ˢ
#,ˢ !#'" .1#1+ˢ "#ˢ $'?ˢ #1+&ˢ #,ˢ 1 -('.6ˢ #,ˢ 'ˢ $'?ˢ H$,(&'6ˢ $,(6ˢ
5$((#!:6ˢ 5$,:6ˢ 2-$'"&(ˢ E$-:6ˢ #,ˢ 4&'1&ˢ "#ˢ $ˢ #1+&6ˢ *")#1"ˢ ")&

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#,ʻ 3 +", !"6ʻ $'(ʻ "#ʻ $22# 'ʻ 1,4&?#,+6ʻ #--&!"#,+6ʻ ,&$+1,&,+6ʻ 92&'B
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"#ʻ @&ʻ :&2"ʻ #8ʻ $--ʻ #' &+ʻ !#--&!"&(ʻ $'(ʻ ,&!& 4&(ʻ @?ʻ 4 ,"1&ʻ #8ʻ $'?
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&,&("$%&'"+ʻ * ") 'ʻ $'?ʻ +1!)ʻ &4&-6ʻ <$--&?6ʻ #,ʻ 3 +", !"6ʻ #,ʻ $'?
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,&+2&!"ʻ ")&,&#8ʻ $'(ʻ ")&ʻ +$ (ʻ #%% ++ #'&,+ʻ $,&ʻ)&,&@?ʻ $-+#ʻ $1")#N , L&(ʻ "#ʻ $22-?ʻ ")&ʻ #' &+ʻ "#ʻ @&ʻ !#--&!"&(ʻ $'(ʻ ,&!& 4&(ʻ 8,#%ʻ &$!)ʻ (+" ' !"ʻ &4&-6ʻ <$--&?6ʻ #,ʻ 3 +", !"6ʻ #,ʻ $'?ʻ 5$,"ʻ ")&,&#8ʻ ,&+2&!" 4&fe76ʻ @?ʻ 4 ,"1&ʻ #8ʻ O$'>ʻ +1!)ʻ $"&ʻ #,ʻ $"&+ʻ $+ʻ $8#,&+$ (6ʻ "#ʻ $'(ʻ 8#,ʻ ")&ʻ +&4&,$-ʻ 51,2#+&+7"#ʻ *) !)ʻ ")&ʻ +$%&ʻ %$?ʻ @&ʻ -$*81--?ʻ $22- &(ʻ 1'(&,ʻ ")&ʻ 1")#, "?ʻ #8ʻ ")&ʻ +$ (ʻ ,&! "&(ʻ !"+ʻ #,ʻ #8ʻ ") +ʻ !"6ʻ @1"ʻ +#ʻ '&4&,N ")&-&++ʻ ")$"ʻ &$!)ʻ &4&-6ʻ <$--&?6ʻ #,ʻ 3 +", !"6ʻ $'(ʻ &4&,?ʻ 5$,"ʻ #8ʻ +1!)ʻ &4&-6ʻ <$--&?6ʻ #,ʻ 3 +", !"6ʻ +)$--ʻ @&$,ʻ "+ʻ #*'ʻ #+"+6ʻ)$,.&+6ʻ $'(ʻ 92&'!&+ʻ ʻ $'(ʻ 'ʻ !$+&ʻ $'?ʻ +1!)ʻ #+"+6ʻ)$,.&+6ʻ $'(ʻ 92&'!&+ʻ +)$--ʻ $22-?ʻ "#ʻ #,ʻ @&ʻ '!1,,&(ʻ 'ʻ ,&+2&!"ʻ #8-<#ʻ #,ʻ %#,&ʻ &4&-+6ʻ <$--&?+6ʻ #,ʻ 3 +", !"+6ʻ #,ʻ 5$,"+ʻ ")&,&#8ʻ ,&+2&!" 4&-?6ʻ ")&ʻ +$%&ʻ +)$--ʻ @&ʻ $22#,N "#'&(ʻ $'(ʻ (4 (&(ʻ @&"*&&'ʻ +1!)ʻ &4&-+6ʻ <$--&?+6ʻ $'(ʻ 3 +", !"+6ʻ #,ʻ +1!)ʻ 5$,"+ʻ ")&,&#8ʻ ,&+2&!" 4&-?6ʻ 'ʻ +1!)ʻ $''&,ʻ $+ʻ ")&ʻ +$ (ʻ #%N % ++ #'&,+ʻ +)$--ʻ $(>1(.&ʻ "#ʻ @&ʻ 8$,ʻ $'(ʻ &C1 "$@-&

) 3" #4ʻ "D/D #ʻ 3 ʻ G Eʻ H"2/4Dʻ +D/ ʻ E #Eʻ ./ Oʻ 2O 7 36ʻ O6ʻ D# I /D!ʻ H

<ʻ 5,#4 (&(ʻ $-*$?+6ʻ $'(ʻ @&ʻ 81,")&,ʻ &'$!"&(ʻ)$"ʻ '#") '. 'ʻ ") +ʻ !"ʻ !#'"$ '&(ʻ +)$--ʻ &9"&'(ʻ #,ʻ @&ʻ !#'+",1&(ʻ "#ʻ &9"&'(ʻ "#ʻ ,&N -&$+&ʻ #,ʻ (+!)$,.&ʻ $'?ʻ 5&,+#'6ʻ #(?ʻ 5#- " !ʻ #,ʻ #,2#,$"&6ʻ 8,#%ʻ $'?ʻ $@ - "?ʻ "#ʻ *) !)ʻ +1!)ʻ 5&,+#'6ʻ #(?ʻ 5#- " !ʻ #,ʻ #,2#,$"&6ʻ *$+ʻ #,ʻ *&,&ʻ @&8#,&ʻ ")&ʻ 2$++ '.ʻ #8ʻ ") +ʻ !"ʻ +1@>&!"ʻ @?ʻ ,&$+#'ʻ #8ʻ &'1,&6ʻ ,#'"$.&6ʻ 5,&+!, 2" #'6ʻ 1+"#%6ʻ #4&'$'"6ʻ #,ʻ H,$'"ʻ @1"ʻ 'ʻ !$+&ʻ $'?ʻ +1!)ʻ 5&,+#'6ʻ #(?ʻ 5#- " !ʻ #,ʻ #,2#,$"&6ʻ +)$--ʻ '#"ʻ :&&2ʻ 'ʻ .##(ʻ $'(ʻ 2,#2&,ʻ &2$,ʻ $'?ʻ E$--+6ʻ $':+6ʻ &*&,+6ʻ H1"+6ʻ H#"&+6ʻ $-! &+6ʻ 1''&-+6ʻ 1-4&,"+6ʻ -1 !&+6ʻ -##(.$"&+6ʻ 1%@- '.ʻ $?+6ʻ 1"+6ʻ $'(ʻ #")&,ʻ E#,:+6ʻ (+6ʻ $'(ʻ 3&8&'!&+ʻ "#ʻ *) !)ʻ)&6ʻ +)&6ʻ #,ʻ ")&?ʻ %$?ʻ @&ʻ - $@-&ʻ @?ʻ ,&$+#'ʻ #8ʻ $'?ʻ +1!)ʻ &'1,&6ʻ ,#'"$.&6ʻ 5,&+!, 2" #'6ʻ #4&Bʻ #$'">ʻ #,ʻ H,$'"Aʻ $'(ʻ +)$--ʻ '#"6ʻ $8"&,ʻ)$4 '.ʻ)$(ʻ &4&'ʻ 3$?+ʻ #" !&ʻ 8,#%ʻ ")&ʻ 1,4&?#,6ʻ 3 :&,&&4&6ʻ #,ʻ #")&,ʻ 88 !&,ʻ "#ʻ @&ʻ $22# '"&(ʻ @?ʻ ")&ʻ #1,"ʻ #8ʻ &*&,+ʻ 8#,ʻ ")$"ʻ 51,2#+&6ʻ 2,#!&&(ʻ "#ʻ 21"ʻ ")&ʻ +$%&ʻ '"#ʻ .##(ʻ $'(ʻ 2,#2&,ʻ &2$,ʻ *")ʻ $--ʻ ,&$+#'$@-&ʻ $'(ʻ 2,#2&,ʻ 3 +2$"!)6ʻ ")&'ʻ $'(ʻ '")$"ʻ $+&ʻ +)$--ʻ @&ʻ -$*81-ʻ 8#,ʻ +1!)ʻ 1,4&?#,6ʻ 3 :&,&&4&6ʻ #,ʻ 88 !&,ʻ "#ʻ 21"ʻ ")&ʻ +$%&ʻ '"#ʻ .##(ʻ $'(ʻ +188 ! &'ʻ &2$,ʻ $'(ʻ ")&ʻ 92&'!&+ʻ "#ʻ @&ʻ '!1,,&(ʻ ")&,&@?ʻ +)$--ʻ @&ʻ 2$ (ʻ @?ʻ ")&ʻ 5&,+#'6ʻ #(?ʻ 5#- " !ʻ #,ʻ #,2#,$"&6ʻ - $@-&ʻ "#ʻ +1!)ʻ &2$,ʻ $+ʻ $8#,&+$ (

(D/32 #ʻ +D/^ E #Eʻ 3 ʻ ODʻ C2 Gʻ . /ʻ &^ CD#HDEʻ 2#Gʻ EEʻ . O Dʻ #ʻ D&DH I 3 #4ʻ (O O EE #Eʻ .ʻ DZD/E

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) 3" #4ʶ 7ʶ 3" Eʶ H3ʶ 3ʶ C/DH7IGDʶ (I/3Eʶ .ʶ DZD/Eʶ ./ 0ʶ H2IE#4ʶ #^ \I /6ʶ 2#Gʶ +/DED#3O D#3ʶ O6ʶ , I/6ʶ 2Eʶ OD. /D

< ʶ '(ʶ *)&,&$+ʶ 5&,+#'+ʶ 8,&C1&'"-?ʶ ,&%#4&ʶ 8,#%ʶ $'(ʶ . 4&ʶ 12ʶ ")&ʶ 5#++&++ #"ʶ #8ʶ $'(+6ʶ &'&%&'"+6ʶ $'(ʶ &,&("$%&'"+6ʶ @&8#,&ʶ (&, 4 '.ʶ ")&ʶ 81--ʶ &'&8"ʶ #8ʶ ")&ʶ 1"-$?ʶ #8ʶ ")&ʶ -$+"ʶ !#"ʶ #,ʶ $"&ʶ $++&++&(ʶ #,ʶ %2#+&(ʶ 12#"ʶ ")&%ʶ "ʶ ,&+2&!"ʶ ")&,&#8ʶ 1'(&,ʶ #,ʶ @?ʶ 4 ,"1&ʶ #8ʶ ")&ʶ $*ʶ #8ʶ &*&,+6ʶ $'(ʶ "ʶ +>1+"ʶ $'(ʶ ,&$+#'$@-&ʶ ")$"ʶ ")&ʶ 5&,+#'+ʶ *)#ʶ +1!!&&(ʶ ")&%ʶ "ʶ ")&ʶ 5#++&++ #"ʶ ")&,&#8ʶ +)#1-(ʶ @&ʶ +1@>&!"ʶ "#ʶ $ʶ 5,#2#," #"ʶ #8ʶ +1!)ʶ $"&ʶ @&ʶ ")&,&8#,&ʶ &'$!"&(ʶ)$"ʶ *)&,&ʶ $'?ʶ 5&,+#"ʶ +)$--ʶ !#%&ʶ '"#ʶ #,ʶ #!!12?ʶ $'?ʶ $'(+6ʶ &'&%&'"+6ʶ #,ʶ &,&("$%&'"+ʶ #1"ʶ #8ʶ #,ʶ 8,#%ʶ *) !)ʶ $'?ʶ #")&,ʶ 5&,+#"ʶ $++&++&(ʶ $+ʶ $8#,&+$ (ʶ +)$--ʶ @&ʶ ,&%#4&(6ʶ $'(ʶ $-+#ʶ *)&"ʶ $'?ʶ $'(+6ʶ &'&N %&'"+6ʶ #,ʶ &,&("$%&'"+ʶ +)$--ʶ $"ʶ ")&ʶ %&ʶ #8ʶ %$: '.ʶ +1!)ʶ !#"ʶ #,ʶ $"&ʶ @&ʶ &%2"?ʶ #,ʶ 1'#!!12 &(6ʶ ")&"ʶ &4&,?ʶ 5&,+#"ʶ +#ʶ ,$"&(ʶ #,ʶ $++&++&(ʶ $'(ʶ ,&%#4 '.ʶ 8,#%6ʶ $'(ʶ &4&,?ʶ 5&,+#"ʶ +#ʶ !#% '.ʶ '"#ʶ #,ʶ #!!12? '.ʶ ")&ʶ +$%&6ʶ +)$--ʶ @&ʶ -$@-&ʶ "#ʶ 2$?ʶ +1!)ʶ !#"ʶ #,ʶ $"&ʶ "ʶ 2,#2#," #"ʶ "#ʶ ")&ʶ %&ʶ ")$"ʶ +1!)ʶ 5&,+#'+ʶ ,&+2&!" 4&-?ʶ #!!12 &(ʶ ")&ʶ +$%&ʶ $'(+6ʶ &'&%&'"+6ʶ #,ʶ &,&("$%&'"+6ʶ "ʶ ")&ʶ +$%&ʶ $''&,6ʶ $'(ʶ 1'(&,ʶ ")&ʶ - :&ʶ 5&'$-"?ʶ #8ʶ 3 +",&++6ʶ $+ʶ 8ʶ +1!)ʶ 5&,+#"ʶ +#ʶ ,&%#4 '.ʶ)$(ʶ '#"ʶ ,&%#4&(6ʶ #,ʶ +1!)ʶ 5&,+#"ʶ +#ʶ !#% '.ʶ "ʶ #,ʶ #!!12? '.ʶ)$(ʶ @&&"ʶ #,. '$--?ʶ ,$"&(ʶ $'(ʶ $++&++&(ʶ "ʶ +1!)ʶ !#"ʶ #,ʶ $"&ʶ ʶ $'(ʶ *)!ʶ +$(ʶ 5,#2#," #'6ʶ "ʶ !$+&ʶ #8ʶ 3 +21"&ʶ @&"*&&"ʶ ")&ʶ 5$,"&+6ʶ +)$--ʶ @&ʶ $+!&,"$ '&(ʶ $'(ʶ +&""-&(ʶ @?ʶ $'?ʶ #1,"ʶ #8ʶ &*&,+] 5,#4 (&(ʶ $-*$?+6ʶ ")$"ʶ '#ʶ #1".# '.ʶ &'$'"ʶ +)$--ʶ @&ʶ &'" "-&(ʶ "#ʶ)$4&ʶ #,ʶ !-$ %ʶ $'?ʶ -$,.&,ʶ %#1'"ʶ #8ʶ $"&ʶ ")$"ʶ +)$--ʶ)$4&ʶ @&&"ʶ $!"1$--?ʶ 2$(ʶ @?ʶ) %6ʶ $'(ʶ '#"ʶ ,&2$(ʶ @?ʶ)+ʶ $'(-#,(

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3 +!,&" #'' #8' +1!)' #1,"6' $'(' $-+#6' '' - :&' $''&,' $'(' $"' ")&,' 3 +N
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* ") '' ")&,' #%% ++ #'6' "#' @&' $@$'(#'&(' $'(' . 4&'' 126' $'(' '&*'
3&8&'!&+' $'(' E$--+6' $':+6' -1 !&+6' -##(.$"&+6' 1%@- '.' $?+6'
1"+6' $'(' #")&,' E#,:+' "#' @&' %$(&' $'(' !#'" '1&(' '' - &1' ")&,&#8'
$'(' '' &4&,?' +1!)' $+&' "#' (,&!"' @?' 'C1 ,?' $'(' 5,&+&'"%&'"' #8' $'
R1,?' '' *)$"' $''&,' $'(' 5,#2#," #'+' ")&' +$%&' +)$--' ")&,&$8"&,' @&'
,&2$,&(' $'(' %$ '"$ '&(' @?' ")&' 5&,+#'6' #(?' 5#- " !' #,' #,2#,$"&6'
(&, 4 '.' (4$'"$.&' #,' $4# ('.' 3$%$.&' ")&,&@?' #,' ")&,&8,#%6'
)$4 '.' ,&.$,(' "#' 2,&4 #1+' $@ - " &+' '' ,&+2&!"' #8' ")&' E$--+' $'('
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) 3'3 ' #3D/^
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' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(')$"' '#") '.'
)&,& 'B@&8#,&' !#'"$ '&(' +)$--' @&' !#'+",1&(' "#' $1")#, L&' #,' &%2#*&,'
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%$?' @&' (4 (&(' $%#' .' (4&,+' 5&,+#'+6' &$!)' #8' *)#%' %$?' @&' - $@-&' OD' #H7 I GDG'
"#' ")&' &2$,' X 8' $!&,"$ '' 5#," #'' ")&,&#8' $'(' '' #,(&,' "#' $4#' (' ")&' #' '#D' +/D^
&!&++ "?' #8' 2,&+&'" '.' &$!)' +1!)' 5&,+#'' +&2$,$"&-?' '' ,&+2&!" #8' ")&' ED#3 O D#3!'
#',&2$,' #8' +1!)' !#%%#'' &$' E$--6' $':6' &*&,6' #,' #")&,' E#,:6' 2#G' EDC2/23D^
@&' " 81,")&,' &'$!"&(')$" " +)$-' @&' -$*81-' 8#,' $'?' &*&,+' R1,?6' 76' 3/2FD/EDG
$-- 6' 1,4&?#,6' 92&'("#,6' #,' #")&,' 5&,+#'' "#' 2,&+&'" ")&' *)#-&'
#8' +1!)' &$' E$--6' $':6' &*&,6' #,' #")&,' E#,:' ,&+2&!" 4&-?6' #,' +1!)'
5$," ")&,&#8' ,&+2&!" 4&-?' $+' +)$-' $" $'?' %&' @&' #1" #8' ,&2$,' #,'
,&C1 ,&' !-&$'+ '.6' $'(' "#' $--&.&' '' +1!)' 5,&+&'"%&'' *)$" 5&,+#'+' #,'
#(&+' 5#- " !' #,' #,2#,$"&' $,&' - $@-&' "#' ")&' &2$,' ")&,&#86' $'(' $-+#'
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*&'"?B& .)" 3$?+' #" !&' #8' +1!)' 5,&+&'"%&'' "#' @&' -&8" * ")' #,' $"
")&' -$+" #,' 1+1$-' 5-$!&' #8' @#(&' #,' 88 !&' #8' +1!)' 5&,+#'6' #(?'
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#")&,') '.+' *) !)' +)$-')$4&' @&&'' #,' +)$-')&,&$8"&,' @&' 21,!)$+&(6'
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$-+#' $-' $'(' + '.1-$,' ")&' H##(+6' ##-+6' V"&'+ -+6' $"&, $-+6' $'('
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$'(+6' &'&%&'"+6' &,&("$%&'"+6' 1 -('.+6' ,&!" #'+6' E#,:+6
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@? $'? #1," #8 &*&,+ +)$--6 $+ #8"&'' $+ ,&C1 ,&(' @? +1!)' #1,"6 ,&'(&,'
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12 +1!)' <#1!)&,+6 #,' +)$-- 8#,' ")& 2$!& #8 #1,"&&'' 3$?+ $8"&,'
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!&, ' ' . ' ")&' +$%&' ' @1" '#' +1!)' 88 !&, ' *)#' +)$--' @&' !#%% ""&(' #"
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' '(' @&' " 81,")&,' &'$!"&(' ')$" 8'$'?' 88 !&,' #,' &,4$'" #8'
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+#' @&-#' . ' . ' "#' #,' 4&+"&(' '' $'?' +1!)' #%% ++ #'&,+' #8' &*&,+' $+'
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*#' 3$?+' $8"&,' #" !&' #8') +' @& ' . ' (+!)$,.&(' $'(' #8') +' @& ' .'
,&C1 ,&(' "#' (&- 4&,' 12' ")&' +$%&' +)$--' @&' . 4&'' "#') %6' #,' -&8" $") +'
-$+" #,' %#+" 1+1$-' 5-$!&' #8' @#(&6' #,' 8' ")&' E 8&6' E (#*6' $% -?6' #,'
&2,&+&'"$" 4&+' #8' $'?' +1!)' 88 !&,' #,' &,4$'" *)#' +)$--')$22&'' "#'
(&6' +)$--6' $8"&,' - :&' #" !&' . 4&'' "#')&,6' ")&%6' $'?' #,' & ")&,' #8' ")&%6'
,&81+&' "#' (&- 4&,' 12' 2#++&++ #'' #8' ")&' +$%&' * ") '' ")&' - :&' &,%' $8"&,'
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& ")&,' #8' ")&' +$ (' $+&+' " +)$--' $'(' %$?' @&' -$*81-' 8#,' $'?' +1!)' #1,"
#8' &*&,+' 8#,' ")&' #1'"?6' % "+6' #,' 3 +", !" *)&,& '' ")&' +$%&'
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8#,' ")&' #1'"?6' % "+6' #,' 3 +", !"6' "#' #,(&,' $' #'+"$@-&' #,' #")&,'
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E #' .'3"D'
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.. HD/E'
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V ʾ ʾ ʾ 1ʾ B ʾ ʾ (2Cʾ

/D2E I /D/ʾ B ʾ '(ʾ @&ʾ "ʾ 81,")&,ʾ &'$!"&(6ʾ)$"ʾ "ʾ +)$--ʾ '#"ʾ @&ʾ -$*81-ʾ 8#,ʾ $'?ʾ
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")&ʾ -&,:ʾ #,ʾ #")&,ʾ 5&,+#'ʾ 'ʾ ")&ʾ &,4 !&ʾ #,ʾ %2-#?ʾ #8ʾ $'? +1!)ʾ -&:ʾ
#,ʾ #8ʾ) +ʾ 5$,"'&,6ʾ +)$--ʾ !#'" '1&ʾ 'ʾ #,ʾ $!!&2"ʾ ")&ʾ 88 !&ʾ #8ʾ ,&$+1,&,7ʾ
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3 +",!"ʹ 8#,ʹ *) !)ʹ)&ʹ #,ʹ ")&?ʹ +#ʹ $!"+ʹ #,ʹ $!"6ʹ #,ʹ)$")ʹ #,ʹ)$4&ʹ $!"&(ʹ $+
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ˢ 5,#4 (&(ˢ $-*$4+6 $'(ˢ @& " 81,")&,ˢ &'$!"&(ˢ)$" ")>7 -&,:ˢ @& '.ˢ ")&ˢ 5-$ '" 886 5,#+&!1"#,6 #,ˢ 3&8&'($'" ˢ $'? +1!)ˢ !"#' > 1 "+6 5,#!&&('.+6 5,#+&!1" #'+6 #,ˢ '(!"%&'"+ˢ $+ˢ $8#,&+$ (ˢ +)$--ˢ '#" $88&!" ")& #%2&"&'!? #8 +1!)ˢ -&,:ˢ "# @& $ E "'&++ˢ ˢ $'? +1!)ˢ !"#'+6 1 "+;ˢ 5F#+&!1" #'+6 $'(ˢ '(!"%&'"+6 ˢ ")& +$%&ˢ $''&,ˢ $+ˢ)& % .)")$4& @&&'ˢ 8ˢ) +ˢ $%&)$(ˢ '#" @&&'ˢ %$(& 1+& #8 $+ˢ ")& 5-$ '" 887 5,#+&!1"#,6 #,ˢ 3&8&'($'" ˢ $'? +1!)ˢ !"#'+6 1 "+6 5,#N !&&('.+6 2,#+&!1" #'+6 #,ˢ '(!"%&'"+

= I7Dˢ. / 3"D #3D/C/D32^ 3 # .ˢHD/^ 32 # @ /GE 2#G D/OE .ˢ3" E H3

ˢ '(ˢ @& " 1,")&,ˢ &'$!"&(ˢ)$" ")& E#,(+ˢ \ˢ #1,"^ $'(\ˢ #1," #8 &*&,+ˢ^ ˢ ") +ˢ !" +)$--ˢ ,&+2&!" 4&-? @& (&&%&(ˢ "# %&$"ˢ &4&,? #1,"6 &++ #'+6 ++&%@-$.&6 #,ˢ &&" '.ˢ #8 $'? 9 #,ˢ %#,& #%% ++ #'&,+ˢ #8 &*&,+ˢ X),&&ˢ *)&,&#8 @& '.ˢ #8 ") ˢ T1#,1%['$%&(ˢ >ˢ $'? #%% ++ #'ˢ #8 &*&,+6 $'(ˢ $!" '.ˢ ˢ ")# 9&!1" #'ˢ "- &,&#8 ˢ $'(ˢ *)&,&4&,ˢ ˢ "- +ˢ !" $'? E#,(ˢ #,ˢ E*(+ ˢ #,ˢ $,& 1+&(ˢ #,ˢ &%2-#?&(ˢ %2#," '.ˢ ")& '.1-$,ˢ 1%@&,ˢ #,ˢ ")& $+!1- '& H&'(&,ˢ #'-?6 +1!)ˢ E#,(ˢ #,ˢ E#,(+ˢ +)$--ˢ &9"&'(ˢ "# $'(+)$--ˢ @& !#'+",1&(ˢ "# '!-1(& +&4&,$-ˢ 5&,+#'+ˢ $+ˢ *&--ˢ $+ˢ '& 5&,+#'6 $'(ˢ &%$-&+ˢ $+ˢ *&--ˢ $+ˢ $-&+6 $'(ˢ $ #(? #,ˢ #(&+ 5#-" !6 #,0 2#,$"&6 #,ˢ #--&.$"&6 #,2#,$" #'ˢ #,ˢ #,2#,$" #'+ ..,&.$"& #,ˢ #-&6 $+ *&--ˢ $+ˢ '(4 (1$-+6 1'-&++ˢ " @& #")&,* +& +2&! $--? (,&!"&(ˢ #,ˢ 2,#4 (&(ˢ 8#,

" E H3 # 3 3 ˢ C/D5IG HD 2#6 7 H27 H3

ˢ ˢ '(ˢ @&ˢ " 81,")&,ˢ &'$!"&(ˢ)$" '#") '.ˢ ˢ ") +ˢ !" !#'N "$ '&(ˢ +)$--ˢ &9"&'(ˢ #,ˢ @& !#'+",1&(ˢ "# &9"&'(ˢ "# $88&!"6 $-"&,6 $@, (.&6 #,ˢ '"&,8&,& * ")ˢ $,"? #!$-ˢ #,ˢ 5, 4$"& !" #8 5$,- $%&'" 8#,ˢ &*&,+ˢ !#'!&,' '.ˢ $'? #1'"?6 "?6 #*'6 3 +", !"6 $'(+6 #,ˢ % "+6 #,ˢ $'? #%% ++ #'ˢ #8 &*&,+ˢ ˢ ")& #1'"? #8 - @ ˢ * ") ˢ ")& 3 +"$'!& #8 &'ˢ -&+ˢ 8,#% ")#) * ˢ.? ˢ ˢ ")& ? #8 ˢ &9!&2" +1!)ˢ 5$,"+ˢ #8 ")& +$ (#1'"? $+ˢ %&? - & * ") ˢ $'? #)$,$ ++ #'" #8 #*&,+ˢ #8 ")& ## '"? #8 . ?C #,ˢ "# $88&!"6 $-"&,6 $@, (.&6 #,ˢ '"&,8&,& * ")ˢ $'? $4 .$@-& 4&,6 $'$-6 5#,"6 #,ˢ $,N @#1,ˢ 1'(&,ˢ ")& $'$.&%&'" #,ˢ 5#*&,ˢ #8 $'? #%% ++ #'&,+6 ,1+N "&&+6 #,ˢ 5,#2, &"#,+ˢ @? 4 ,"1& #8 $'? #!$-ˢ #,ˢ 5, 4$"& !" #8 5$,- $N %&'" > #,ˢ "# $88&!"6 $-"&,6 $@, (.&6 #,ˢ '"&,8&,& * ")ˢ $'?)$,"&,6 $*6 V+$.&6 #,ˢ 1+"#% ˢ #,ˢ !#'!&,' '.ˢ) (* - ˢ ˢ B ˢ #,ˢ ")& H,&$" &4&-ˢ #8 ")& &'+ !$--&(ˢ) ˢ #

2F #4ˢ= 4"3E .ˢ3"D (36 .ˢ #G *ˢ

ˢ '(ˢ @& " 81,")&,ˢ &'$!"&(6 -$" '#") '.ˢ ˢ ") +ˢ !" !#'B "$ '&(ˢ +)$--&9"&'(ˢ #,ˢ)& !#'+",1&(ˢ "# &9"&'(ˢ "# ,&2&$-6 #,ˢ ˢ $'?* +& $88&!"6 $-"&,6 $@, (.&6 #,ˢ '"&,8&,& * ") ")& #%% ++ #'&,+ #8 &*&,+ #8 ")& "? #8 ˢ $'(ˢ @&,"&+ˢ ")&,&#86 #,ˢ ")& .)"+6 5#*&,+6 #,ˢ 5, 4 -&.&+ #8 ")& $?#,ˢ $'(ˢ #%%#'$-"? $'(ˢ " L&'+ #8 ")& "? #8 ˢ ˢ ,&-$" #ˢ "# ")& &*&,+6 3,$ '+6 <$1-"+6 $'(ˢ , (.&+ * ") ˢ ")& +$ ("? #,ˢ @&,"&+6 #,ˢ $'? !" ˢA !"+ #8 5$,- $%&'")&,&N "#8#,& %$(& 8#,ˢ %$: '.6 $%&'('.6 (&&'('.6 * (&' '.6 $-"& '.6 #,ˢ !-&$'+ '.ˢ ")& +$ (&*&,+6 3,$ '+6 <$1-"+6 $'(ˢ , (.&+ * ") ˢ ")&+$ ("? $'(ˢ @&," &+

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E +' &92&(&' ' ")$" ")&' +&4&,$- "$%2 31" &+ '#*' 2$?$@-& ' (' $'(' ,&+2&!" 4&-? 12#' (4&," +&%&'"+ $'(12#' &$ '+1,$'!&+ ' !&,"$ ' $+&+6 $'($-+# 12#' 5$%2)-&"+6 $'(12#' &!& 2"+ #, 3 +!)$,.&+ . 4&' 8#, #, 12#' ")& 5$?%&'" #8 $'? 1% #8 #'&? '#" $%#1'" '. "# 4& 5#1'(+6 +)#1-(@& ,&2&$-&(6 $'(")$" #")&, "$%2 31" &+ +)#1-(@& .,$'"&(12#' +1!)' (4&," +&%&'"+ $'(&$ '+1,$'!&+ ,&+2&!" 4&-? ' - &1 #8 ")& +$ (31" &+ '#*' 2$?$@-& ")&,&#' $+ $8#,&N +$ (' @& " ")&,&8#,& &'$!"&(@? ")& D '.;+ %#+" 9!&--&' $>&+"?6 @? $'(* ")' ")& (4 !& $'(#'+&' #8 ")& #,(+ 2 , "1$- $'(&%N 2#,$-6 $'(#%%#'+6 ' ") + 2,&+&'" 5$,- $%&'" $++&%@-&(6 $'(@? ")& 1")#, "? #8 ")& +$%&')$" 8,#% $'($8"&, ")& 8") 3$? #8 & '& ")#1+$'(& .)")1'(,&($'(") ,"?B"),&& ")& 31" &+ . $'"&($'('#*' 2$?$@-& ' (1'(&, $'(@? 4 ,"1& #8 $' ! 2$++&(' ")& 8"?B8 8")' &$, #8 ")& & . ' #8 D '. ' ")&) ,(6 '" N "1-&(* ' = $ > $ * 1 ?

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#, '+1,$'!& #, #")&, '+",1%&'"6 @? *)$"&4&, $%& ")& +$%& +)$--
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#8 $'?) 2 #, <&++&-6 #, 12#' ")& ,& .)" #8 $'?) 2 #, <&++&-6 #,
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'#" &9!&&(' . *&-4& $-&'($, #'")+ ' $'($-+# ")& 31"? .,$'"&(
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%1!) $'(+1!) 5$," $'(5$,"+ #8 ")& +$ (31" &+ ,&+2&!" 4&-? $+ +)$--
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O6 VV ' '
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+2 0 C"7D3E
2#G GFD/^
3 ED O D#3E N

2#G 3"D
* I 3 DE
4/2#3DG #
/D72#G O6
VT ' ' H'VT'
#HD/32 # D2
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& ʻ '&")#1+$'(ʻ & .)")1'(,&('$'(") ,"?B"),&&6 $'(+)$--")&'#, $" $'? %& $8"&,*$,(+@& #,'@&!#%& (1& #,2$?$@-& $'(,&%$ ' ' $,,&$,$'(1'2$ ($-- *) !) +$ (31" &+ +# ,&%$ ' '. ' $,,&$,$'(1'2$ ($+ $8#,&+$ (+)$-- @& ,&!#4&,$@-& @? ")& +$">& E$?+ $'(&$'+6 $'(* ") +1!) $'(")& +$%& 5&'$-" &+6 $+ 8 ") + !")$('#" @&&' %$(&

ʻ '(@& " &'$!"&( )$" 8,#%6 $'($8"&,")& 8")' 3$? #8 & ʻ '& ")#1+$'(& .)")1'(,&($'(") ,"?B"),&&67 " - &1 $'(+"&$(#8 ")& +$ (+&4&,$- 31" &+ 12#" (4&," +&%&'"+ $'(&$ '+1,$'!&+ @? ") + !" ,&2&$-&(6 ")&,& +)$-- @& .,$'"&(6 ,$ +&(6 -&4 &(6 !#--&!"&(6 $'(2$ (' ($'(,&+2&!" 4&-?6 1'"# $'(8#,")& V+& #8 + $>&+"?6 + & ,+$'(1!!&++#,+6 8#,$'(' ,&+2&!" #8 ")& +&4&,$- ," !-&+6 $""&,+6 $'( ) '.+ %&'"#'&('$'((&+!, @&(" ")& !)&(1-& "# ") + !" $''&9&(6 "- & +&4&,$- 31" &+ #, 1%+ #8 #'&? +&" (#*' ' .1,&+ $.$ '+" ")& +$%& ,&+2&!" 4&-?6 #,#")&,* +& +2&! 8 &($'(+&" 8#,")' ' ")& +$ (!)&(1-& $'(")$" ")& +$ (!)&N (1-&6 $'(")& +&4&,$- 5,#4 + #'+6 &.1-$" #'+6 $'(3 ,&!" #'+")&,& ' !#'"$ '&(* "), ,&+2&!" "# ")& +$ (31" &+6 $'(")& ," !-&+6 $""&,+6 $'( ) '.+ !)$,.&(")&,&* ")6 +)$-- @& (&&%&('$'("$:&' "# @& 5$," #8 ") + !"6 $'(")$"")& +$ (31" &+ +)$-- @& (&'#% '$"&('$'((&&%&("# @& "$%2 31" &+6 $'(+)$-- @& 1'(&,")& $,& $'($'$.&%&'" #8 ")& #%% ++ #'&,+ #8 "$%2+ 8#,")& %& @& '. 8#, ")& V' "&(D '.(#%6 #8 ʻ ($'(

ʻ '(' #,(&, "# 2,#4 (& 8#,")& #--&!" #' #8 ")& 31"? @? ") + !" .,$'"&(#' (4&," +&%&'"+ !#'"$ '&(' #, 21@- +)&(* ") $'? 5$%2)-&"6 "&,$,? E#,:6 #, 5&, #(!$- 5$2&,6 @& & '$!"&( )$" #'& 2, '"&(#2? #8 &4&,? 5$%2)-&" #, "&,$,? E#,: #, 5&, #(!$- 5$2&, X'#" @& '.$ &*+2$2&,e6 !#'"$ ' '.#,)$4 '. 21@N - +)&(")&,&* ") $'? (4&," +&%&'" #, (4&," +&%&' - $@-& "# "$%2 31"?6 *) !) +)$-- @& 21@- +)&(* ") ' ")& " &+ #8 . " #, ' " ' ,&+2&!" 4&-?6 #, * ") " *&'"? -&+ ")&,&#8 ,&+2&!" 4&-?6 +)$--6 * ") ' ")& 2$!& #8 9 3$?+ '&9" $8"&,")& 51@N - !$" #' ")&,&#86 @& @,#1.)"6 "#.&")&, * ") $-- (4&," +&%&'"+ 2, '"&(")&,& '6 #, 21@- +)&(#, '"&((&("# @& 21@- +)&(")&,&* ")6 "# ")& &$(88 !& 8#, "$%2+ / * ʻ . " #, ' " ' '&$,&+" "# *) !) +1!) 5$%2)-&"6 "&,$,? E#,:6 #, 5&, #(!$- 5$2&, +)$--)$4& @&&' 21@- +)&(6 $'(")& "-& ")&,&#86 $'(")&), +" $' $%& $'(1,'$%& #8 ")& 5, '"&,$'(51@- +)&,&#86 * ") ")& 1%@&, #8 (4&," +&%&'"+ !#'"$ '&(' ")&,&* ") $'($'? "$%2 31"? @? $* 2$?$@-& ' ,&+2&!" #8 +1!) (4&," +&%&'"+ +)$-- @& ,&. +"&,&(' "# @& :&2" $" +1!) 88 !&6 $'(")& 31"? #" +1!) (4&," +&%&'"+ +)$-- @& ")&,& 2$ ("# ")& &!& 4&, H&'&,$- #8 "$%2 31" &+ 8#,")& %& @& '.6 #,) + 3&21"? #, -&,:6 #, ")& 2,#2&, $1")#, L&(88 !&,6 *)# +)$-- ")&,&12#' 8#,") * ") . 4& $ &!& 2" 8#,")& +$%& $'(#'& 2, '"&(#2? #8 &4&,? +1!) 5$%2)-&"6 "&,$,? E#,:6 #, 5$2&, $+ $8#,&+$ (6 *) !) +)$-- @& 21@- +)&(' $'? 5-$!& ' ")& V' "&(D '.(#%6 '#" @& '. * ") ' ")& " &+ #8 . " #, ' " #, * ") " *&'"? -&+ ")&,&#8 &+2&!" 4&-?6 +)$--6 * ") ' ")& 2$!& #8 & ' 3$?+ '&9" $8"&,")& 51@N - !$" #' ")&,&#86 @& @,#1.)"6 "#.&")&, * ") $-- +1!) (4&," +&%&'" $+ $8#,&+$ (6 "# ")& &$(88 !& #, 3 +", @1"#, #8 "$%2+ 8#,")& %& @& '. * ") '

/2#3 .'#DZ %D#3E 2#G D27#E I /CHDE OD# 2##D&DG!

(C DE .' 27 +2 0 C "7D3E! H H #32 #^ #4 GFD/ 3 EDOD#3E 3 ODED#3 3 3"D >D2G ' .. HD . / 32 0 CE Z 3" # & * 26E 2.3D/ + I O7 H23 #

TU ' L B' ' (2C'

K* ") ' ")& 3 +", !" ' M*) !) +1!) 5$%2)-&"6 "&,$,? E#,:6 #, 5$2&,
+)$--)& 21@- +)&($'(+1!) 3 +", @1"#, +)&,&@? ,&C1 ,&(8#,")B
M*") "# ,&. +"&, ")& +$%& %$''&, $8#,&+$ ($ ##: "# @& @?
) % :&2" 8#, ")$" 51,2#+& $'(")& 31"? 2$?$@-& ,&+2&!" #8 +1!)
(4&," +&%& 8"+ +)$-- @& ")&,&12#" 2$ ("# +1!) 3 +", @1"#,6 *)#
+)$--. 4& $ &!& 2" 8#, ")& +$%& $'(8 ")& 31"? *) !) +)$-- @& @?
$* 2$?$@-& ,&+2&!" #8 $'? +1!) (4&," +&%&'"+ $+ $8#,&+$ (+)$--
'#" @& (1-? 2$ (* ") ")& ,&+2&!" 4& %&+ '(")& $''&,
)&,& 'B@&8#,& - % "&($'($22# '"&(")$" 51,2#+&6 ")& 5, '"&, $'(
51@- +)&, #8 +1!) 5$,)2)-&"6 "&,$,? E#,:6 #, 5$2&,6 $'(")& 51@N
- +)&, #8 $'? +1!) (4&," +&%&'"+6 +)$-- ,&+2&!" 4&-? 8#,8& $'(2$?
")& 1% #8 *&'"? 5#1'(+ 8#, &4&,? +1!) 88&'!& $'($'?
!" #'6 '8#,%$" #'6 #, #")&, 5,#!&&('. 8#, ")& &!#4&,? #8 +1!)
5&'$-"?A #, 8#, ")& &!#4&,? #8 ")& 31"? #' $'? +1!) (4&," +&N
%&'"+6 5,##8 #8 ")& 5$?%&'" #8 ")& +$ (31"? +)$-- - & 12#' ")&
3&8&'($'"

+ ZD/E 2#G +/ F E #E . /OD/ H3E 3 OD #. /HD 2#G C I3 # D&DH I3 # Z 3" /D42/G 3 '3"D * I3 DE "D/DO6 4/2#3DG

< '(@& &'$!"&( )$" $-- ")& 5#*&,+6 5,#4 + #'+6 -$1+&+6
&.1-$" #'+6 $'(3 ,&!" #'+6 '&+6 #,8& "1,&+6 5$ '+6 $'(5&'$-" &+6
!#'"$ '&(#, %2#+&(@? ")& +&4&,$- !"+ #8 5$,- $%&'" ,&-$" '. "#
")& 31" &+ #' (4&," +&%&'"+ $'(&$ '+1,'""!&+ ,&+2&!" 4&-?6 $'(
")& +&4&,$- !"+ #8 5$,- $%&'" ,&-$" '. "# $'? 2, #, 31" &+ #8 ")& +$%&
D '(#, 3&+!, 2" #' ($'(,&+2&!" 4&-?6 +)$--
@& #8 81-- #,!& $'(88&!" * ") ,&+2&!" "# ")& 31" &+ @? ") + !"
.,$'"&(6 $'("# ")& <&--1%6 5$,!)%&'"6 $'(5$2&,6 ," !-&+6 $""&,+6
$'( ) '.+6 !)$,.&(#, !)$,.&$@-& ")&,&* ")6 $'("# ")& 5&,+#'+ - $@-&
"# ")& 5$?%&'" #8 ")& +$ (31(&+6 +# 8$, $+ ")& +$%& $,& #8 +)$-- @&
$22- !$@-&6 $-- $+&+ '#")&,&@? &92,&++-? 2,#4 (&(8#,6 $'(+)$--
@& #@+&,4&(6 $22- &(6 &'8#,!&(6 $'(21" " &9&!1" #' 8#, ")& ,$ + '.6
-&4? '.6 !#--&!" '.6 $'(+&!1, '. #8 ")& +$ (31" &+)&,&@? .,$'"&(6
$'(#")&, * +& ,&-$" '. ")&,&"#6 8$, $+ ")& +$%& +)$-- '#" @& +12&,N
+&(&(@? $'(+)$-- @& !#'+ +"&'" * ") ")& &92,&++ 5,#4 + #'+ #8 ") +
!"6 $+ 81--? % (&88&!"1$--? "#)-- '"&'"+ $'(51,2#+&+ $+ 8")& +$%&
)$(@&&)&,& ,&2&$"&($'(+2&! $--? &'$!"&(* ") ,&8&,&'!& "# ")&
+$ (31" &+ @? ") + !" .,$'"&(

#EI/2#HDE # 4/HI7^ 3I/27 +/ ^ GIHD! A2/O^ #4 3 H]! 2#G O C7D^ O D#3E . >IEO2#G/6 D&D O C3DG ./ O 32OC * I3 DE

< '(*)&,&$+ " + &92&(&'""# &9&%2"8,#% ")& 31" &+ %2#+&(
@? $*# '+1,$'!&+ 8,#% #++ @? ,& $-- '+1,$'!&+ #' ., !1-N
"1,$- 5,#(1!&6 5$,% '. "#!:_ $'(%2-&%&'"+ #8 1+@$'(,?
($'(,&+2&!" 4&-? @& &'$!"&( )$" '# 'N
+1,$'!& 8,#% #++ #, 3$%$.& @? ,& *) !) +)$-- @& %$(&6 ,&'&*&(6
#, !#'" '1&(@? $'? 5#- !? &88&!"&(12#' #, $8"&, ")& *&'"?B8#1,")
3$? #8 & '& ")#1+$'(& .)")1'(,&($'(") ,"?B"),&&6 #' $'?
., !1-"1,$- 5,#(1!&6 $,% '. "#!: X- 4& #, (&$([6 #, %2-&%&'"+
#, V"&'+ -+ #8 1+@$'(,?6 @& '.V2#' $'? $,% #, $,%+
(#, +)$-- @& - $@-& "# ")& ?&$,-? 5&,B!&'"$.& 31" &+ #,
"# $'? #")&, "$%2 31"? .,$'"&(#, %2#+&(V2#" #, ,&+2&!" #8
'+1,$'!&+ 8,#% #++ #, 3$%$.& @? ,& @? $'? !" #, !"+
8#,!& (#, ! ,&+2&!" 4&-?6 2,#4 (&(+1!) '+1N
,$'!& +)$-- @& &88&!"&(@? $ +&2$,$"& $'((+ " !" 5#- !? ,&-$" '.
+#-&-? "# +1!) ., !1-"1,$- 5,#(1!&6 $,% '. "#!:6 %2-&%7"+6 #,
V"&'+ -+

< '(

< ' '(' *)&,&$+' @?' !&,"$ '' !"+' '' 8#,!&' '' ' (' $'(' ' ,&+2&!" 4&-?' ")&' #,2#,$" #'+' #,' #%2$' &+' #,' 5&,+#'+' 'N +1, '.' $.$ '+'' #++' @?' ,&' $,&' ,&C1 ,&(' "#' (&- 4&,' "#' ")&' #%% +N + #'&,+' #8' "$%2+' #,' ")& ,' 88 !&,+' !&,"$ '' C1$,"&,-?' !!#1'"+' #8' $--' '+1,$'!&+' %$(&' @?' +1!)' #,2#,$" #'+6' #%2$' &+6' 2,' &,+#'+6' $'(' !#'"$ ' '.' +1!)' 5$," !1-$,+' ,&-$" '.' ")&,&"#' $+' '' ")&' +$ (' !"+' ,&N +2&!" 4&-?' $,&' +2&! 8 &(' '' ")$'' &)$-8' @&' '' &'$!"&(')$'' +1!)' #,N 2#,$" #'+' #,' #%2$' &+' #,' 5&,+#'+' '+1, '.' $+' $8#,&+$ (6' $'' ")&' %&' #8' ")&' 3&- 4&,?' #8' &4&,?' +1!)' C1$,"&,-?' !!#1'"6' +)$--' $-+#' (&- 4&,' "#' ")&' +$ (' #%% ++ #'&,+' #,' ")& ,' 88 !&,+' $' +&2$,$"&' $'(' (+" '!'' !!#1''' #8' $--' '+1,$'!&+' #8' ., !1-"1,$-' 5,#(1!&6' $,% '.' "#!:6' #,' %2-&%&'"+' #,' V"&'+ -+' #8' 1+@$'(,?' 8,#%' #++' #,' 3$%$.&' @?' ,&6' %$(&6' ,&'&*&(6' #,' !#'" '1&(' @?' +1!)' #,2#,$" #'+' #,' #%2$' &+' #,' 5&,+#'+' ,&+2&!" 4&-?' (1, '.' ")&' T1$,"&,' 8#,' *) !)' +1!)' -$+"B%&'" #'&(' !!#1''' +)$--' @&' ,&'(&,&(' ' $'(' '' &4&,?' +1!)' -$+"B%&'" #'&(' !N !#1''' ")&,&' +)$--' @&' ",1-?' +2&! 8 &(' ")&' 1%@&,' #8' &4&,?' 5#- !?' @?' *) !)' $'?' +1!)' '+1,$'!&' +)$--' @&' %$(&6' ")&' 1%' #,' %#1''' #8' ")&' 1%+' '+1,&(' ")&,&@?6' $'(' ")&' %&' 8#,' *) !)' +1!)' '+1,$'!&' +)$--' @&' %$(&' #,' ,&'&*&(' #,' !#'" '1&(' $'(' 8#,' $'?' 3&8$1-'' '' ")&' 3&- 4&,?' #8' +1!)' !!#1''' !#'"$ ' '.' $'(' +2&! 8? '.' ")&' 5$," !1-$,+' ,&C1 ,&(' @?' Q) +' !"6' ")&' #,2#,$" #'' #,' #%2$'?' #,' 5&,+#'' #,' 5&,+#'+' %$: '.' +1!)' 3&8$1-'' +)$--' 8#,8&'' ")&' 1%' #8' '&')1'(,&(' 5#1'(+

< ' '(' @&' '' &'$!"&(')$'' ")+' !'' %$?' @&' $-"&,&(6' $%&'(&(6' #,' ,&2&$-&(' @?' $'?' !'' #,' !"+' "#' @&' 2$++&(' '' ") +' 2,&+&''' &++ #'' #8' 5$,- $%&'"

DC2/23D' HH I#3E' .' #EI/2#HDE' #' 4/ HI7^ 3I/27' +/ ^ GIHD!' H' 3 ' OD' /D#GD/DG' \I2/3D/76' 3 ' 3"D' (O^ O EE #D/E' .' 32OCE

H3' O26' OD' 273D/DG' 3" '

)) ' = ' Y = '

B =

(+

H3 3 2ODD#G 2# H3 .3"D D#3" -D2/ . > E
723D B25DE36! . / /D4I723 #4 3"D =DGIH3 # .
3"D)23 #27 *DO3 [3" ! * Q _

@ $' !" *$+ 2$++&(' ")& & '") &$, #8 ")&
& .' #8 D ' . ") & #1,")6 '" "1-&(U ' (
* E
9 ' " $' (" *$+ ' $' (@? ")& +$ (!"6 $%#' .+"
#")&, ") ' .+6 & '$!"&(6 ")$" ")& '&B8#1,") 5$," #8 ")& 1% *) !)
8,#% %& "# %& +)#1-($22&$, @? &4&,? +1!) ' '1$- !!#1 '"
,&+2&!" 4&-? "# @& ")& $!"1$- +1,2-1+ &4&'1& #8 ")& &$, %%&(N
$"&-? 2,&!&(' . @&?#' (")& 92&'("1,& #8 ")& V ' "&(D '.(#%
+)#1-(@& !)$,.&($' (")& +$%& *$+ ' $' (@? ")& +$ (!" %$(&
!)$,.&$@-& 12#' ")& #'+#- ($"&(1'(#8 ")& V ' "&(D '.(#%6 $'(
*$+ (,&!"&("# @& ++1&($' (2$ (6 ' $' (8#, ")& T1$,"&,#8 ")& &$,
")&' '&9" &'+1 ' . ")& T1$,"&,#8 "-T &$, * ") ' *) !)'+1!) ' '1$-
!!#1 '" ,&+2&!" 4&-? *$+ ' $' (@? ")& +$ (!" (,&!"&("# @& %$(&
126 & ")&, '"# ")& $' :#8 . '#, '"# ")& $' :#8 "#
")& !!#1 '" #8 ")& #%% ++ #'&,+ 8#, ")& &(1!" #' #8 ")& $" #'$-
3&@"6 $+ ")& +$ (#%% ++ #'&,+ +)#1-((,&!"6 "# @& @? ")&% $22- &(
"#*$,(+ ")& &(&%2" #' #8 ")& $" #'$- 3&@" #8 ")& V ' "&('.B
(#%6 ' +1!) 5,#2#," #'+6 $' ($" +1!) %& $' (%&+ ' &$!) $'(
&4&,? T1$,"&, ' &4&,? 81"1,& &$,6 $+ ")& +$ (#%% ++ #'&,+ 8#,
")& &(1!" #' #8 ")& $" #'$- 3&@" +)#1-(,&C1 ,&6 $!!#,(' . "# ")&
5,#4 + #'+ $'(3 ,&!" #'+ #8 $'? !"#, !"+ ")& ' 8#,!& ,&+2&!"N
' . 1%+ ++1&(8,#% ")& 9!)&C1&, "#*$,(+ ")& &(1!" #' #8 ")&
+$ ($" #'$- 3&@"] ' (*)&,&$+ ' $' (@? ")& +$ (!" " *$+ $-+#
&'$!"&(

&'$!"&(' ")$" ")&' +$ (' #%% ++ #'&,+' +)#1-(' 8,#%' %&' "#' %&'
$22-?' $--' +1!)' ,&+2&!" 4&' ''1$-' 1%+' +#' 2-$!&(' "O' " & 8' !!#1'" @?'
4 ,"1&' #8' ")&' +$ (' !"6' & ")&,' '' ")&' *)#-&' #,' '' 2$,"6' '' ")&' 51,!)$+&'
#8' +1!)' ,&(&&%$@-&' 51@- !' ''1 " &+6' #,' ''1 " &+' 8#,' $'?' &,%' #,'
&,%+' #8' &$,+6' #,' '' ")&' 51,!)$+&' #8' 9!)&C1&,' --+' #,' '' ")&'
2$? ' .' #- ' 9!)&C1&,' --+6' #,' '' ")&' $(4$'! ' .' #8' +1!)' ''1$-' 1%+'
12#'' ")&' ,&(' " #8' $'?' 9!)&C1&,' --+' ")&,& 'B@&8#,&' %&'" #'&(' $+'
")&' +$ (' #%% ++ #'&,+' +)#1-(' 8,#%' %&' "#' %&' >1(.&' %#+'" &92&N
(&'"] '(' *)&,&$+' " +' &92&(&'" "#' &9"&'(' ")&' 5#*&"+' $'(' 5,#A'
4 + #'+' #8' ")&' +$ (' ,&! "&(' !"6' $, (' "#' &'$@-&' ")&' +$ (' #%% ++ #'&,+'
"#' 21,!)$+&' 8,#%' %&' "#' %&6' * ")' ")&' +$ (' #' &+' #,' * ")' $'?'
5$," ")&,&#8' *) !)' +)$--' @&' +#' ++1&(' "#' ")&%' 8 #%' %&' "#' %&6'
1'(&,' ")&' 5,#4 + #'+' #8' ")&' +$ (' !"6' * ") '' $'?' T1$,"&,' '' ") +'
2,&+&'" &$,6' #,' '' $'?' 81"1,&' &$,' $8"&,' ")&' 2$++ ' .' #8' ") +' !"6' ")&'
&4&,+ #'' #8' $'?' #8' ")&' &9 +" ' .' 2&,2&"1$-' &(&&%$@-&' '' > " & 6'
#,' #8' $'?' #8' ")&' 2&,2&"1$-' ,&(&&%$@-&' ''1 " &+' *) &&&' %$?' @&'
)&,&$8"&,' !,&$"&(6' $'(' *) !)' %$?' $" $'?' %&')&' &9 +" ' .' $8"&,' ")&'
2$++ ' .' #8' ") +' !"6' $'(' !#'+" "1" ' .' ")&' 51@- !' 1'(&(' 3&@"#8' ")&'
V' "&(' D ' .(#%' @&' " ")&,&8#,&' &'$!"&(' @?' ")&' D ' .;+' %#+"
9!&--&'" 7&+"?6' @?' $'(' * ")' ")&' (4 !&' $'(' #'+&'" #8' ")&'
#,(+' 2 , "1$-' $, (' &%2#,$-6' $'(' #%%#'+6' '' ") +' 2,&+&'" 5$,- $B'
$++&%@-&(6' $'(' @?' ")&' 1")#, "?' #8' ")&' +$%&6')$" 8,#%'

"D' (/# $'(' $8"&,' ")&' 2$++ ' .' #8' ") +' !" " +)$8" $'(' %$?' @&' -$*81-' 8#,' ")&'
0 EE #D/E' .$R' #%% ++ #'&,+' 8#,' ")&' &(1!" #'' #8' ")&' $" #'$-' 3&@" X$'(' ")&'
. /' 3"D' = D ' #%% ++ #'&,+' $,&')&,&@?' $1")#, L&(' +%(' &%2#*&,&([6' #1" #8'
8)&7 $'#'$' $'?' #8' ")&' +$ (' #' &+' *) !)' +)$--' @&' ++1&(' "#' ")&%' "#*$,(+' ")&'
* DO3D O ' &(1!" #'' #8' ")&' $" #'$-' 3&@"6' @?' 4 ,"1&' #8' ")&' +$ (' ,&! "&(' !"6'
C ZD/DG' 3 ' 34' #8' $'?' #")&,' !" #,' !"+' '#*' '' 8#,!&' #,' *) !)')&,&$8"&,'
2CC76' 3"D' 2$++&(' ,&-$" ' .' "#' ")&' 1'(' !#%%#'-?' !$--&(' \')&' ' : ' .'
(@&+ : ' .' 1'(6^' "#' $22-?' +1!)' #' &+' #,' $'?' 5$," ")&,&#86' 8' ")&?' +)$8"
%& ' '$' ' ' ") ' .' 8 "6' $" +1!)' %&' $'(' %&+' $'(' 1'(&,' +1!)' &.1-$" #'+' $+'
+ I /H"2ED' .' $ (' #%% ++ #'&,+' +)$--' ") ' .' 2,#2&,' "#' $(#2" 8#,' ")$" 51 i2J76'
")& &4&,+ #'7i># 51,!)$+&' #8' ")&' &4&,+ #'' #8' $'?' #8' ")&' 2,&+&'" &9 +" ' .
,&(7& % ' 2&,2&"1$-' ,&(&&%$@-&' ''1 " &+6' #,' ")&' &4&,+ #'6' #8' $'?' 2&,2&"1%'
##I 3 DEN' ,&(&&%$@-&' ''1 " &+' *) !)' %$?' $" $'?' %&' &9 +" $8"&,' ")&' 2$++ ' .'
#8' ") +' !"6' $'(' !2'+" "1" ' .' ")&' 51@- !' 1'(&(' 3&@" #8' ")&' V' "&('

2#G' 3 ' 4/2#3!' D ' .(#%6' $'(' "#' .,$'" "#' $'?' 5&,+#'' #,' 5&,+#'+6' #(&+' 5#- " !' #,'
K #,2#,$"&6' '' &9!)$' .&' 8#,' +1!)' 2&,2&"1$-' ''1 " &+' 2$?$@-&' $" ")&'
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%#+"' 9!&--&#"' $>&+"?6' @?' $ ' (' * ")' ")&' (4 !&' $ ' (' #'+&' '' #8' ")&'
#,(+' 2 , "1$-' $ ' (' &%2#,$-6' $ ' (' #%%#'+6' ' ' ") +' 2,&+&' ' ' 5$,- $N
%&' ' ' $++&%@-&(6' $ ' (' @?' ")&' 1")#, "?' #8' ")&' +$%&')$"' 8,#%' $ ' ('
$8"&,' ")&' 2$++ ' .' #8' ") +' !"' +#' %1!)' #8' ")&' +$ (' ,&! "&(' !"' $+' +'
)&,& 'B@&8#,&' ,&! "&(' +)$--' @&' $ ' (' ")&' +$%&' +')&,&@?' ,&2&$-&(

+2/3' .'
/DH 3DG' H3'
/DCD27DG

3] 5, ' "&(' @?' ' ' $ ' (' ' '
5, ' "&,+' "#' ")&' D ' . ;+' %#+"' 9!&--&' ' ' $>&+"?'

)) ' ' = ' ' ' Y = '

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H3̂ . / 3"D̂ O 323 # . H3 #E 2#G I 3E
/D723 #4 3 ' =D27 +/ CD/36! 2#G . / E OC7 .6 #4 3"D
=DODG DE . / 3/6 #4 3"D = 4"3E 3"D/D3 !
[3"ʾ ! *ʾ Q _

+ʾ "ʾ &'$!"&(ʾ @?ʾ ")&ʾ D ' . ;+ʾ %#+"ʾ 9!&--&'"ʾ $>&+"?6ʾ @?ʾ $'(ʾ
* ")ʾ ")&ʾ (4 !&ʾ $'(ʾ #'+&'"ʾ #8ʾ ")&ʾ #,(+ʾ 2 , "1$-ʾ $'(ʾ
&%2#,$-6ʾ $'(ʾ #%%#'+6ʾ "ʾ ") +ʾ 2,&+&'"ʾ 5$,- $%&'"ʾ $++&%N
@-&(6ʾ $'(ʾ @?ʾ ")&ʾ 1")#, "?ʾ #8ʾ ")&ʾ +$%&ʾ)$"ʾ ")&ʾ E#,(+ʾ $'(ʾ B D2# #4ʾ .ʾ
92,&++ #'+ʾ)&,& 'B$8"&,ʾ %&'" #'&(6ʾ *) !)ʾ "ʾ ")& ,ʾ #,('$,?ʾ . ' 8 BU>W
!$" #"ʾ)$4&ʾ $ʾ %#,&ʾ !#'8 '&(ʾ #,ʾ $ʾ (88&,&'"ʾ &&$' ' .6ʾ +)$--ʾ "ʾ ") +ʾ !"6ʾ W
&9!&2"ʾ *)&,&ʾ ")&ʾ $"1,&ʾ #8ʾ ")&ʾ 5,#4 + #"ʾ #,ʾ ")&ʾ #'"&9"ʾ #8ʾ ")&ʾ
!"ʾ +)$--ʾ &9!-1(&ʾ +1!)ʾ #'+",1!" #'6ʾ @&ʾ '"&,2,&"&(ʾ $+ʾ 8#--# * +
X")$"ʾ +ʾ "#ʾ +$?6[ʾ ")&ʾ E#,(ʾ \ $'(^ʾ +)$--ʾ &9"&'(ʾ "#ʾ $'#,+6ʾ &+B ; 2#G Lʾ
+1$.&+6ʾ $'(ʾ $--ʾ #")&,ʾ !#,2#,&$-ʾ &,&("$%&'"+ʾ *)$"+#&4&,6ʾ $'(ʾ $-+#
"#ʾ ")&+ʾ X#")&,ʾ ")$"ʾ ")&+ʾ @&-#' . ' . "#ʾ $ʾ 2 , "1$-ʾ #,ʾ -&&%#+?'$,?ʾ
#,2#,$" #"ʾ #-&[6ʾ $'(ʾ $-+#ʾ "#ʾ $'?ʾ)$,&6ʾ +"$"&6ʾ #,ʾ '"&,&+"ʾ "ʾ
")&%ʾ #,ʾ $'?ʾ #8ʾ ")&%6ʾ *)&")&,ʾ ")&ʾ +$%&ʾ +)$--ʾ @&ʾ $ʾ ,&&)#-(ʾ #,ʾ
)$""&-ʾ '"&,&+"6ʾ $'(ʾ *)&")&,ʾ ,&&)#-(ʾ #,ʾ #2?)#-(6ʾ #,ʾ)&-(ʾ $!!#,(N
' .ʾ "#ʾ $'?ʾ #")&,ʾ &'1,&ʾ $'(ʾ ")&ʾ E#,(ʾ \ʾ &'"^ʾ +)$--ʾ &9"&'(ʾ "#ʾ $ = D#3 Lʾ
$--ʾ &, #"+6ʾ $'(ʾ "#ʾ $--ʾ &,4 !&+ʾ $'(ʾ 1"+ʾ 8#,ʾ *) !)ʾ $ʾ 3 +",&++ʾ %$?
@&ʾ %$(&6ʾ $'(ʾ "#ʾ $--ʾ ''1" &+ʾ $'(ʾ 2&, #(!$-ʾ 1%+ʾ #8ʾ #'&?
!)$,.&(ʾ 12#"ʾ #,ʾ 2$?$@-&ʾ #1"ʾ #8ʾ $'?ʾ $'(ʾ X&9!&2"ʾ #(1+&+ʾ #,ʾ
#%2#+"#'+ʾ @&-#' . ' . "#ʾ $ʾ 2 , "1$-ʾ #,ʾ -&&%#+?'$,?ʾ #,2#,$" #"ʾ
Qʾ ʾ #-&[

Q ' ' ;' B ' ' (2C

+D/E #' 3"/ I4"' Z" O' 2#^ 3"D/'H72 OE

#-&[' $'(' ")&' 5&,+#'' "),#1.)' *)#'' $'#")&,' 5&,+#'' +' +$ (' "#' !-$ %' +)$--' %&$'' $'?' 5&,+#'' @?6' "),#1.)6' #,' 1'(&,6' #,' @?' ")&' !"' #8' *)#%' ")&' 5&,+#'' +#' !-$ % '.' @&!$%&' &'" "-&(' "#' ")&' +"$"&' #,' '"&,&+"' !-$ %&(6' $+' &,6' ++1&' '' $-6' &'$''' @?' ")&' 1,"&+?' #8' . ' &'$''' '' 3#*&,6' 1!!&++#,6' +2&! $-' #,' .&'&,$-' !!12$''6' 9&!1"#,6' (% '+",$"#,6' &.$"&&6' 1g@$'(6' ++ .'&&6' 22# '"&&6' 3&4 +&&6' #,' #")&,* +&6' $'(' $-+#' $'?' 5&,+#'' *)#' *$+' &'" "-&(' "#' $'' +"$"&' #,' '"&,&+"' "#' *) !)' ")&' 5&,+#'' +#' !-$ % '.6' #,' +#%&' 5&,+#'' "),#1.)' *)#%')&' !-$ %+6' @&!$%&' &'" "-&(' $+' #,(' @?' +!)&$"'

$' +D/E #L

$'(' ")&' E#,(' \'5&,+#'^' +)$--' &9"&'(' "#' $' #(?' 5#-" !6' #,2#,$"&6' #,' #--&. $"&6' $'(' "#' $' -$++' #8' ,&("#,+' #,' #")&,' 5&,+#'+6' $+' *&--' $+' $'' '(4 (1$-' $'(' &4&,?' E#,(' %2#," '.' ")&' '.1-$,' 1%@&,' #'-?' +)$--' &9"&'(' $'(' @&' $22- &(' "#' +&4&,$-' 5&,+#'+' #,') '.+' $+' *&--' $+' #'&' 5&,+#'' #,') '.' $'(' &4&,?' E#,(' %2#," '.'")&' $+!1N - '&' H&'(&,' #'-?' +)$--' &9"&'(' $'(' @&' $22- &(' "#' $' &%$-&' $+' *&--' $+' $' $-&

) IOOD/' 2#G' D#GD/

) ' 2#G' /' =D#3' 3 ' OD' /DH FD/DG' OI3' Z 3O #' U' -D2/E' 2.3D/' 3"D' = 4"3' .' H3 #' 2H^ H/IDG' 3 ' 3"D' (72 O2#3' /' E OD' +D/E #' Z" ED' E323D' OD' H72 OE

' '(' @&' '' 81,")&,' &'$!"&(')$'' $8"&,' ")&'),"?B8 ,+'' 3$?' #8' ' *" ' '&' ")#1+$'(' & .)'')1'(,&(' $'(' ") ,"?B"),&&' '#' 5&,+#'' +)$--' %$:&' $'' '",?' #,' 3 +",&++' #,' @, '7' $ ' !" #'' "#' ,&!#4&,' $'?' $'(' #,' &''' @1'' * ") '' *&'"?' &$,+' '&9'' $8"&,' ")&' %&' $'' *) !)' ")&' .)'' "#' %$:&' +1!)' '",?' #,' 3 +",&++' ' "#' @, '.' 1!)' !" #'' +)$--')$4&' 8 ,+'' $!!,1&(' "#' +#%&' 5&,+#'' "),#1.)' *)#%')&' !-$ %+' ' #,' 8' +1!)' .)'' +)$--' '#'')$4&' $!!,1&(' "#' $'?' 5&,+#'' "),#1.)' *)#%')&' !-$ %+6' ")&'' * ") '' *&'"?' &$,+' '&9'' $8"&,' ")&' %&' $'' *) !)' ")&' .)'' "#' %$:&' +1!)' '",?' #,' 3 +",&++' #,' "#' @, '.' +1!)' !" #'' +)$--')$4&' 8 ,+'' $!!,1&(' "#' ")&' 5&,+#'' %$: '.' #,' @, '.' '.' ")&' +$%&A

@"D#' 3"D' = 4"3' E"2?' OD' GDDODG' 3' "2FD' 2HH/IDGW #' 3"D' (2ED' .' 2#' E323D' # + EEDEE #N

' '(' @&' '' 81,")&,' &'$!"&(6')$'' '' ")&' #'+",1!" #'' #8' ") +' !'' ")&' .)'' "#' %$:&' $'' '",?' #,' 3 +",&++' #,' @, '.'$'' !" #'' "#' ,&!#4&,' $'?' $'(' #,' &''' +)$--' @&' (&&%&(' "#')$4&' 8 ,+'' $!!,1&(' $'' +1!)' %&' $+')&,& '&' B$8"&,' +' %&'" #'&(' X")$'' +' "#' +$?6[' *)&'' ")&' 5&,+#'' !-$ % '.' +1!)' $'(' #,' &'"6' #,' +#%&' 5&,+#'' "),#1.)' *)#%')&' !-$ %+6' +)$--6' '' ,&+2&!'' #8' ")&' +"$"&' #,' '"&,&+"' !-$ %&(6')$4&' @&&'' '' 5#++&++ #'' #,' '' &!& 2'' #8' ")&' 5,#8 "+' #8' +1)' $'(6' #,' '' &!& 2'' #8' +1!)' &''6' $'(' +)$--' *) -&' &'" "-&(' ")&,&"#')$4&' @&&'' (+2#++&++&(6' #,')$4&' (+!#'" '1&(' +1!)' 5#++&++ #'' #,' &!& 2"6' ")&'' +1!)' .)'' +)$--' @&' (&&%&(' "#')$4&' 8 ,+'' $!!,1&(' $'' ")&' %&' #8' +1!:' 3 +2#+ "#'' #,' 3 +!#'" '1$'!&' #8' 5#++&++ #'6' #,' $'' ")&' -$+'' %&' $'' *) !)' $'?' +1!)' 5,#8 "+' #,' &'' *&,&' #,' E$+ +#' ,&!& 4&(' ' $'(' *)&'' ")&' 5&,+#'' !-$ % '.' +1!)' $'(' #,' &'' +)$--' !-$ %' ")&' +"$"&' #,' '"&,&+"' #8' +#%&' (&!&$+&(' 5&,+#'' *)#' +)$--')$4&' !#'" '1&(' '' +1!)' 5#++&++ #'' #,' &!& 2'' '' ,&+2&!'' #8' ")&' +$%&' +"$"&' #,' '"&,&+"' ' ' "' -' ")&' %&' #8') +' 3&$")6' $'(' +)$--')$4&' @&&'' ")&' -$+'' 5&,+#'' &'" "-&(' "#' +1!)' +"$"&' #,' '"&,&+"' *)#' +)$--')$4&' @&&'' '' +1!)' 5#++&++ #'' #,' &!& 2"6' ")&'' +1!)' .)'' +)$--' @&' (&&%&(' "#')$4&' 8 ,+'' $!!,1&(' $'' ")&' %&' #8' +1!)' 3&$")' $'(' *)&'' ")&' 5&,+#'' !-$ % '.' +1!)' $'(' #,' &'' '' ,&+2&!'' #8' +1!)' +"$"&' #,' '"&,&+"' +)$--')$4&' !-$ %&(' $'' &+"$"&' #,' '"&,&+"' "#' $'(' '' ")&' +$%&' #'-?' '' ,&+2&!'' #8' ")&' +"$"&' #,' '"&,&+"' *)#' +)$--')$4&' @&&'' '' ")&' 5#++&++ #'' #,' &!& 2'' #8' ")&' 5,#8 "+' #8' ")&' +$%&' $'(' #'' ")&' -$+'' 5&,+#'' *)#' +)$--')$4&' @&&'' '' 5#++&++ #'' #,' &!& 2'' #8' ")&' 5,#8 "+' #8' ")&' +$%&' $'(' "#' ")&' !-$ %$'' $'(' 1'(&,' +1!)' '+",1%&'' +)$--')$4&B

#' * EC E^ EDEE #' W

#' O23DOD#3' /' *D23"' N

#' 7D#2^ 3 #' N

ODD#

L ' a B ' ' (2C W

@&&' ' +1!)' 5#++&++ #' #,' &!& 2"6 ")&' +1!)' .)" +)$--' @&' (&&%&('
"#)$4& 8 ,+" $!!,1&(' $" ")&' %&' $" 4,) !)' ")&' 5&,+#' !-$ % ' .' $+'
$8#,&+$ (6 #,' ")&' 5&,+#' "),#1.)' *)#%')&' !-$ %+6 @&!$%&' &' "-&(' "#
+1!)' 5#++&++ #' #,' &!& 2" @?' 4 ,"1&' #8' +1!)' '+",1%&' ' $'(' *)&' #H2ED' .'
")&' +"$"&' #,' '"&,&+" !-$ %&(' +)$--')$4&' @&&' $' +"$"&' #,' '"&,&+" .131/D' E'
' &4&,+ #' #,' &%$ '(&,6 #,' #")&,' 81"1,&' +"$"&' #,' '"&,&+"6 $'(' '# A
5&,+#' +)$--')$4&' #@"$ '&(' ")&' 5#++&++ #' #,' &!& 2" #8' ")&' 5,#8 "+' #8'
+1!)' $'(' #,' ")&' &!& 2" #8' +1!)' &' ' ' ,&+2&!" #8' +1!)' +"$"&' #,'
'"&,&+"6 ")&' +1!)' .)" +)$--' @&' (&&%&(' "#)$4&' 8 ,+" $!!,1&(' $" ")&'
%&' $" *) !)' +1!)' +"$"&' #,' '"&,&+" @&!$%&' $' +"$"&' #,' '"&,&+"
' 5#++&++ #' ' $'(' *)&' ")&' 5&,+#' !-$ % ' .' +1!)' $'(' #,' &'"6 #,' H2ED' .'
")&' 5&,+#' "),#1.)' *)#%')&' !-$ %+6 +)$--')$4&' @&!#%&' &' "-&(' @?'
,&$+#' #8' $'?' #,8& "1,&' #,' ,&$!)' #8' #'(" #'6 ")&' +1!)' .)" +)$--' H #G 3 #!'
@&' (&&%&(' "#)$4&' 8 ,+" $!!,1&(' *)&' +1!)' #,8& "1,&' *$+' '!1,,&('
#,' +1!)' #'(" #' *$+' @,#:&'

<' 5,#4 (&(' $-*$?+6)$" *)&' $'?' .)" "# %$:&' $' '",?' #@ "D/D' G^
3 +",&++' #,' "# @, '.' $' !" #' "# ,&!#4&,' $'?' $'(' #,' &' @?' F2#324D' .'
,&$+#' #8' $'?' #,8& "1,&' #,' ,&$!)' #8' #'(" #' +)$--')$4&' 8 ,+" $!N A /.D 31/D' E'
!,1&(' ' ,&+2&!" #8' $'?' +"$"&' #,' '"&,&+" ' &4&,+ #' #,' &%$ '(&,6 # 3' 32]D#' O6'
$'(' ")&' $'(' #,' &' +-$--' '#")$4&' @&&' ,&!#4&,&(' @?' 4 ,"1&' #8' =DO2 #GD/^
+1!)' .)"6 ")&' .)" "# %$:&' $' '",?' #,' 3 +",&++' #,' @, '.' $' O2#!' "D'E"27'
!" #' "# ,&!#4&,' +1!)' $'(' #,' &' +)$--' @&' (&&%&(' "#)$4&' 8 ,+" "2FD' 2' #DZ'
$!!,1&(' ' ,&+2&!" #8' +1!)' +"$"&' #,' '"&,&+" $" ")&' %&' *)&' ")&' = 4"3' Z"D#'
+$%&' +)$--')$4&' @&!#%&' $' +"$"&' #,' '"&,&+" ' 5#++&++ #'6 $+' 8' '# " E' E323D'
+1!)' #,8& "1,&' #,' ,&$!)' #8' #'(" #')$(')$22&'&(H ODE' #3'
+ EEDEE #

<' 5,#4 (&(' $-+#6)$" $.)" "# %$:&' $' '",?' #,' 3 +",&++' #,' "# =DFD/E #D/'
@, '.' $' !" #' "# ,&!#4&,' $'?' $'(' #,' &' +)$--' @&' (&&%&(' "#)$4&' W
8 ,+" $!!,1&(6 ' ,&+2&!" #8' $' +"$"&' #,' '"&,&+" ' &4&,+ #' 6 $" ")&'
%&' $" *) !)' ")&' +$%&' +)$--')$4&' @&!#%&' $' +"$"&' #,' '"&,&+" '
5#++&++ #' @?' ")&' 3&"&,% '$" #' #8' $'?' +"$"&' #,' +"$"&+' ' ,&+2&!"
#8' *) !)' +1!)' $'(' +)$--')$4&' @&&')&-(6 #,' ")&' 5,#8 "+' "),&#8' #,'
+1!)' &' +)$--')$4&' @&&' ,&!& 4&(6 '#"* ")+"$'('.' ")&' 5&,+#'
!-$ % '.' +1!)' $'(6 #,' +#%&' 5&,+#' "),#1.)' *)#%')&' !-$ %+6 +)$--6
$" $'?' %&' 2,&4 #1+-?' "# ")&' ,&$" #' #8' ")&' +"$"&' #,' +"$"&+' *) !)'
+)$--')$4&' (&"&,% '&(6)$4&' @&&' ' 5#++&++ #' #,' &!& 2" #8' ")&'
5,#8 "+' #8' +1!)' $'(6 #,' ' &!& 2" #8' +1!)' &'

<' '(' @&' 81,")&,' &'$!"&(')$" 8#,' ")&' 51,2#+&+' #8' ") +' !" # GO #E'
$' (% ' +",$"#,' !-$ % '.' ")&' +"$"&' #,' '"&,&+" #8' ")&' (&!&$+&(' 3/23 /3'
5&,+#' #8' *)#+&')$"&-+')&' +)$--' @&' $22# '"&(' (% ' +",$"#,' +)$--
@&' (&&%&(' "# !-$ %' $+' 8' ")&,&')$(' @&&' '# '"&,4$-' #8' %&' @&"*&&' +"$"& * @'
")&' 3&$")' #8' +1!)' (&!&$+&(' 5&,+#' $'(' ")&' H,$'" #8' ")&' &"&,+' #8' 13' #3D/F27'
(% ' +",$" #' 2.3D/' *D23"
.' *DHD2EDG

<' '(' @&' 81,")&,' &'$!"&(')$" *)&' $'?' 5&,+#' +)$--' @&' >66 ")&' (2ED'
5#++&++ #' #,' &!& 2" #8' ")&' 5,#8 "+' #8' $'>' $'(6 #,' ' .'2' D#2#3'
$'?' &'"6 $+' &'$'" $" E --6 ")&' .)" #8' ")&' 5&,+#' +1@>&!" <
")&,&"#6 #,' #8' ")&' 5&,+#' "),#1.)' *)#%')&' * ' * + ' . B& B * ' '
#,' 3 +",&++' #,' @, '.' $' !" #' "# +1!)' $'(' #,' #'
@&' (&&%&(' "#)$4&' 8 ,+" $!!,1&(6 &")&,' $" ")&' 3&"&,% '$" #' #8' +1!)' $" 3"D' #G' #8
&'$'!?6 #,' $" ")&' 92 ,$" #' #8' '&' &$,' '&9" $8"&,' ")&' #%%&'!&B' '#D' -D2/
%&'"

QU' L B ' ' (2C

%&'" #8 +1!)' &'$'!?6 $" *) !)' %&' +1!)' &'$'!?' +)$-- @&' (&&%&('
"#')$4&' (&"&,% '&('] 5,#4 (&('$-*$?+6 ")$" '#' #,".$.#,' #,' &+"# B'
C1&' ,1+" +)$-- @&' (&&%&(' "#' @&' $' &'$'" $" E --6 * ") ' ")&'
&&$' '.' #8") +' -$1+&6 "#') +' #,".$.&&' #,' ,1+"&&

) '+D/E #' 2.3D/' 2' D^ #2#H6'./ O' -D2/'3 ' -D2/!' 3 '"2/D' 2#6' = 4"3' O I3' ./ O'3"D' #G' .'3"D'. /E3' -D2/' /' 72E3' +26 O D#3' .' =D#3

< ' '(' @&' " 81,")&,' &'$!"&(6)$" *)&' $'?' 5&,+#' +)$--' @&' '
5#++&++ #' #,' ' &!& 2" #8' ")&' 5,#8 "+' #8' $'?' $'(6 #,' $' &!& 2" #8'
$'?' &'"6 $+' &'$'" 8,#%' &&$,' "#' &&$,' #,' #")&,' 5&, #(6 * ")#1" $'?'
&&$+&' ' E, " '.6 ")&' .)" #8' ")&' 5&,+#' &'" "-&(' +1@>&!" ")&,&"#6'
#,' #8' ")&' 5&,+#' "),#1.)' *)#%')&' !-$ %+6 "#' %$:&' $' '",?' #,'
3 +",&++' #,' "#' @, '.' $' !" #' "#' ,&!#4&,' +1!)' $'(' #,' &'" +)$--'
@&' (&&%&(' "#')$4&' 8 ,+" $!!,1&(' $" ")&' 3&"&,% '$" #' #8' ")&' 8 ,+" #8'
+1!)' &&$,+' #,' #")&,' 5&, #(+6 #,' $" ")&' -$+" %&' *)&' $'?' &'" 2$?N
$@-&' ' ,&+2&!" #8' +1!)' &'$'!?' +)$--')$4&' @&&' ,&!& 4&(' X*) !)' +)$--'
-$+")$22&'[

@"D/D' =D#3' 2O I#3 #4'3 ' / E !' /DED/FDG' O6'2' D2ED' #' @/ 3 #4!'E"27' "2FD' ODD#' Z/ #4.I776' /DHD FDG!' # ' = 4"3' 3 ' 2HH/ I D' #'3"D' D3D/ O #2 ' 3 *' .'3"D' D2ED

' '(' @&' " 81,")&,' &'$!"&(6)$" *)&' $'?' 5&,+#' +)$--' @&' '
5#++&++ #' #,' ' &!& 2" #8' ")&' 5,#8 "+' #8' $'?' 7'(6 #,' ' &!& 2" #8'
$'?' &'"6 @?' 4 ,"1&' #8' $' &&$+&' ' E, " '.6 @?' *) !)' $' &'" $%#1'"N
'.' "#' ")&' ?&$,-?' 1%' #8' *&'"?') -- '.>' #,' 12*$,(+' +)$--' @j' ,&N
+&,4&(6 $'(")&' &'" ,&+&,4&(' @?' 1!)' &&$+&' +)$)')$4&' @&&' ,&!& 4&('
@?' +#%&' 5&,+#' *,#'.81--?' !-$ % '.' "#' @&' &'" "-&(' "#' +1!)' $V(' #,'
&'" ' &&4&,+ #' %%&($"&-?' &92&!"$'" #' ")&' 3&"&,$ %$" #' #8'
+1!)' &&$+&6 $8-(' '#' 5$?%&'" ' ,&+2&!" #8' ")&' &'" ,&+&,4&(' @?' +1!)'
&&$+&' +)$--' $8"&, *$,(+')$4&' @&&' %$(&' "#' ")&' 5&,+#' , 7"81--?'
&'" "-&(' ")&,&"#6 ")&' .)" #8' ")&' 5&,+#' &'" "-&(' "#' +1!)' $'(' #,'
&'"6 +1@>&!" "#' +1!)' &&$+&6 #,' #8' ")&' 5&,+#' "),#1.)' *)#%')&'
!-$ %+6 "#' %$:&' $' '",?' #,' 3 +",&++' #,' "' @, '.' $' !" #' $8"&,' ")&'
3&"&,% '$" #' #8' +1!)' &&$+&' +)$--' @&' (&&%&(' "#')$4&' 8 ,+" $!!,1&('
$" ")&' %&' $" *) !)' ")&' &'" ,&+&,4&(' @?' +1)' &&$+&' *$+' 8 ,+" +#'
,&!& 4&(' @?' ")&' 5&,+#' *,#'.81--?' !-$ % '.' $+' $8#,&+$ (' $'(' '#'
+1!)' .)" +)$--' @&' (&&%&(' "#')$4&' 8 ,+" $`&%&(' "C #' ")&' 3&"&,% N
'$" #' #8' +1!)' &&$+&' "#' ")&' 5&,+#' , .)"81--?' &'" "-&(6

O D/D #I6' # 3' 3 ' OD' GDD O DG' + E^ EDEE #

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++1,$'!&6' $'' ")&' %&' #8' ")&' 9&!1" #'' ")&,&#86' #,' $'' $'?' %&' EEI/2#HD!'
$8"&,*$,(+6' @&' '' 5#++&++ #'' #,' &!& 2'' #8' ")&' 5,#8 "+' #8' +1!)' $'(6' O6' 2' D#2#3'
#,' '' ")&' &!& 2'' #8' +1!)' &'"6' $'('")&' +$%&' 5&,+#'6' #,' $'?' #")&,' # 2 7!' Z" H"!'
5&,+#'' *)$"+#&4&,' X#")&,' ")$'' +#%&' 5&,+#'' &'""-&(' "#' +1!)' 5#++&+N E"27' # 3' O2/'
+#'' #,' &!& 2'' '' ,&+2&!'' #8' $'' +"$"&' *) !)' +)$--')$4&' "$:&'' &88&!'' 3"D' =DO2 #^
$8"&,' #,' '' (&8&$+$'!&' #8' ")&' +"$"&' $-[6' +)$--' !#'" '1&' #,' @&' '' +1!)' GD/E!' 3"D6'
5#++&++ #'' #,' &!& 2'' 8#,' ")&' 5&, #(' #8' *&'"?' &$,+' '&9'' $8"&,' ")&' E"27' OD' O2/^
#%%&'!&%&''' #8' ")&' %&' $'' *) !)' +1!)' ++1,$'!&6' 8' '')$(' ")&'' /DG' 233"D #G'
@&&'' &9&!1"&(' @?' +1!)' &'$''' '' $-' #,' ")&' 5&,+#'' *)#' *#1-(')$4&' .' ZD#36'
@&&'' &'""-&(' "#')+' +"$"&' $-' 8' +1!)' ++1,$'!&')$(' '#'' @&&'' -D2/E' 2.3D/'
&9&!1"&(6' *#1-(6' * ")#1'' ")&' #'+&''' #8' $'?' #")&,' 5&,+#'6')$4&' 3"D' OD'
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92 ,$" #'' #8' +1!)' 5&, #(' #8' *&'"?' &$,+' +1!)' ++1,$'!&' +)$--' @&' EI/2#HD!' .'
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1 '' "#' ,&!#4&,' ")&' +$%&' @1'' * ") '' ")&' 5&, #(' (1, '.' *) !)' @?' 3"D' OD'
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+1!)' !" #'' #,' 1 "' +)$-' 8 ,+')$4&' $!!,1&(' ' X")$"' +' "#' +$?6[' ")&' H DE' 2#G' &
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E"277ʾ ODʾ
O2//DG

ʾ '(ʾ @&ʾ ʾ 81,")&,ʾ &'$!"&(ʾ)$"ʾ ʾ ")&ʾ #'+",1!" #,,ʾ #8ʾ
") + !"ʾ &4&,? 4&,+#" !-$ % '.ʾ $.)ʾ "#ʾ 2,&+&'ʾ "#ʾ #,ʾ @&+"#*ʾ $'?
!!-&+ $+" !$-ʾ &'&8 !&6 $+ʾ 5$",#'ʾ ")&,&#8>ʾ @>ʾ 4 ,"1&ʾ #8ʾ $'?ʾ +"$"&pʾ
'"&,&+"6 #,ʾ .)" *) !)ʾ ")&ʾ *'&,ʾ #8ʾ $," +"$"&ʾ $-ʾ ʾ ")&ʾ (4#*N
+#'ʾ % .)ʾ)$4&ʾ @$,,&(6 +)$--ʾ @&ʾ (&&%&(ʾ "#ʾ &ʾ $ 5&,+#'ʾ !-$ % '.ʾ
"),#1.)ʾ ")&ʾ 5&,+#'ʾ &'" "-&(ʾ "#ʾ +1!)ʾ +"$"&ʾ $-6 $'(ʾ ")&ʾ .)ʾ "#ʾ
@, '.ʾ $'?T1$,&ʾ %2&("ʾ !" #'6 #, 1 ʾ +)$--ʾ)&ʾ - % "&(ʾ $!!#,('.-?

) GF ZE #ʾ
3 ʾ ODʾ /DH'$
FD/DGʾ 2.3D/ʾ
UUʾ - D2/E

ʾ 5,#4 (&(ʾ $-*$?+6 $'(ʾ @&ʾ ʾ 81,")&,ʾ &'$!"&(6)$"ʾ $8"&,ʾ ")&ʾ
+$ (ʾ) ,"?B8 ,+ʾ 3$?ʾ ' *" ʾ ! ʾ ")#1+$'(ʾ & .)ʾ)1'(,&(ʾ $'(ʾ
") ,"?B"),&&ʾ '#ʾ 5&,+#'ʾ +)$--ʾ @, '.ʾ $'?ʾ T'$,&ʾ %2&(ʾ #,ʾ #")&,ʾ
!" #'ʾ #,ʾ $'?ʾ 1 ʾ "#ʾ &'8#,!&ʾ $.)ʾ "#ʾ 2,&+&'ʾ "#ʾ #,ʾ)&+"#Eʾ $'?
!!-&+ $+" !$-ʾ &'&8 !&6 $+ʾ ")&ʾ 5$",#'ʾ ")&,&#86 $8"&,ʾ ")&ʾ 92 ,$" #'ʾ #8ʾ
'&ʾ)1'(,&(ʾ &$,+ʾ 8,#%ʾ ")&ʾ %&ʾ $"ʾ *) !)ʾ $ -&,:ʾ +)$--ʾ)$4&ʾ
#@"$ '&(ʾ 5#++&++ #'ʾ #8ʾ +1!)ʾ &'&8 !&ʾ $(4&,+&-?ʾ "#ʾ ")&ʾ .)ʾ #8ʾ 5,&+&'N
"$" #'ʾ #,ʾ H 8ʾ #8ʾ +1!)ʾ 5&,+#'6 #,ʾ #8ʾ +#%&ʾ 5&,+#'ʾ "),#1.)ʾ *)#%ʾ)&ʾ
!-$ %+6 #,ʾ #8ʾ +#%&ʾ 5&,+#'ʾ &'" "-&(ʾ "#ʾ +#%&ʾ 2,&!&('.ʾ +"$"&ʾ /
'"&,&+"6 #,ʾ 1'(4 (&(ʾ)$,&ʾ #,ʾ $-"&,'$"&ʾ .)ʾ #8ʾ 5,&+&'"$" #'ʾ #,ʾ
H 8"6)&-(ʾ #,ʾ (&, 4&(ʾ 1'(&,ʾ ")&ʾ +$%&ʾ "-&6 1'-&++ʾ $ -&,:ʾ +)$--ʾ
+1@+&C1&'"-?ʾ)$4&ʾ #@"$ '&(ʾ 5#++&++ #'ʾ #8ʾ +1!)ʾ &'&8 !&ʾ #ʾ ")'ʾ
5,&+&'"$" #'ʾ #,ʾ H 8ʾ #8ʾ ")&ʾ 5&,+#'ʾ +#ʾ !-$ % '.6 #,ʾ #8ʾ +#%&ʾ 5&,+#'ʾ
"),#1.)ʾ *)#%ʾ @&ʾ !-$ %+6 #,ʾ #8ʾ +#%&ʾ #")&,ʾ 5&,+#'ʾ &'" "-&(ʾ ʾ ,&+2&!ʾ
#8ʾ $'ʾ +"$"&6)$,&6 #,ʾ .)ʾ)&-(ʾ #,ʾ (&, 4&(ʾ 1'(&,ʾ ")&ʾ +$%&ʾ "-&

IODʾ #Gʾ .ʾ
3"Dʾ +D/ Gʾ .ʾ
0 323 #ʾ
3"Dʾ = 4"3ʾ .ʾ
3"Dʾ +2/36ʾ I3ʾ
.ʾ + EEDEE #ʾ
3 ʾ ODʾ D&3 #^
4I E"DG

<ʾ '(ʾ @&ʾ ʾ 81,")&,ʾ &'$!"&(6)$"ʾ $"ʾ ")&ʾ 3&"&-% '$" #'ʾ #8ʾ
")&ʾ 5&, #(ʾ - % "&(ʾ @?ʾ ") + !"ʾ "#ʾ $'?ʾ 5&,+#'ʾ 8#,ʾ %$: '.ʾ $"ʾ '",?ʾ #,ʾ
3 +",&++6 #,ʾ @, '. '.ʾ $'?ʾ E ,ʾ #8ʾ T1$,&ʾ %2&(ʾ #,ʾ #")&,ʾ !" #'ʾ #,ʾ
1 "6 ")&ʾ .)ʾ $'(ʾ "-&ʾ #8ʾ +1!)ʾ 5&,+#'ʾ "#ʾ ")&ʾ $'(6 &'"6 #,ʾ
(4#*+#'ʾ 8#,ʾ ")&ʾ &!#4&,?ʾ *)&,&#8ʾ +1!)ʾ '",?6 3 +",&++6 !" #'6
#,ʾ 1 ʾ ,&+2&!" 4&-?ʾ % .)ʾ)$4&ʾ @&&'ʾ %$(&ʾ #,ʾ @,#1.)ʾ *") ʾ +1!)ʾ
5&, #(ʾ +)$--ʾ @&ʾ &9" '.1 +)&(

=DHD C3ʾ .ʾ
=D#3ʾ 3 ʾ ODʾ
GDD0DGʾ
=DHD C3ʾ .ʾ
+/ . 3E

<ʾ '(ʾ @&ʾ ʾ 81,")&,ʾ &'$!"&(ʾ)$"ʾ ")&ʾ &!& 2"ʾ #8ʾ ")&ʾ &'ʾ
2$?$@-&ʾ @?ʾ $'?ʾ &'$'ʾ 8,#%ʾ &$,ʾ "#ʾ &$,6 #,ʾ #")&,ʾ &++&&6 +)$--6 $+ʾ
$.$ '+ʾ +1!)ʾ &++&&ʾ #,ʾ $'?ʾ 5&,+#'ʾ !-$ % '.ʾ 1'(&,ʾ) %ʾ X@1" +1@>&!ʾ
"#ʾ ")&ʾ &$+&[6 @&ʾ (&&%&(ʾ "#ʾ @&ʾ ")&ʾ &!& 2"ʾ #8ʾ ")&ʾ 5,#8 "+ʾ #8ʾ ")&ʾ
$'(ʾ 8#,ʾ ")&ʾ 51,2#+&+ʾ #8ʾ ") + !"

=D27ʾ $'(
C &DGʾ Hʾ

"7+ +"3 &Bʾ
HD0 0D/7Q Nʾ

< ʾ '(ʾ @&ʾ ʾ 81,")&,ʾ &'$!"&(Aʾ)$"ʾ '#ʾ E ,ʾ #8ʾ .)ʾ 5$"&'"6
E ,ʾ #8ʾ .)ʾ T1 $ (#% '1+ʾ ,&% + ʾ !1, $%ʾ E ,ʾ #8ʾ .)ʾ !$2 "&6
E ,ʾ #8ʾ .)ʾ ʾ ʾ E ,ʾ #8ʾ .)ʾ -#+&6 E ,ʾ #8ʾ .)ʾ (&ʾ
-$(#'$@ -ʾ 2$,"&ʾ E ,ʾ #8ʾ .)ʾ #8ʾ (4#*+#'6 E ,ʾ #8ʾ .)ʾ 12#'ʾ
3 +!-$ %&,6 E ,ʾ 3&ʾ ,$" #'$@ - @1+ʾ (4 + +ʾ E ,ʾ #8ʾ .)ʾ #8ʾ E$,(6
E ,ʾ 3&ʾ !#'+1&"1(' @1+ʾ &ʾ +&,4 " +6 E ,ʾ #8ʾ &++$4 "6 E ,ʾ #8ʾ
+!)&$"6 E ,ʾ #8ʾ T1#ʾ >1,&6 E ,ʾ #8ʾ &!"$ʾ $(ʾ %#-&'('1%ʾ E ,ʾ 3&ʾ
&++&'(#ʾ C1 &"1%ʾ (&ʾ ")&#-#'#ʾ E ,ʾ #8ʾ &ʾ '>1+"&ʾ 4&9&+ʾ E ,ʾ #8ʾ
&+'&6 E ,ʾ #8ʾ T1#(ʾ 2&,% ""$"ʾ E ,ʾ #8ʾ #,%&(#'ʾ ʾ (&+!&'(&,6 ʾ
,&%$ '(&,6 #,ʾ ʾ ,&4&,"&,6 E ,ʾ #8ʾ ++ L&ʾ #8ʾ '#4&-ʾ (++& + 'ʾ 1 +$'!&6
3$,,& 'B2,&+&'"%&'"6 R1, +ʾ 1",1%6 #,ʾ #," (;$'!&+"#,ʾ E ,ʾ #8ʾ '",?ʾ
+1,ʾ (++& + '6 ʾ ")&ʾ C1 @1+6 ʾ ")&ʾ 2&,6 ʾ ")&ʾ 2&,ʾ $'(ʾ !1 6 #,ʾ ʾ ")&ʾ
2#+"6 E ,ʾ #8ʾ '",?ʾ +1,ʾ '",1+ #'6 E ,ʾ #8ʾ '",?ʾ +1,ʾ $- &'$" #'ʾ (1%
81 "

8,1 "' '#'' !#%2#+' %&'" +6' (1%' 81 "' '8,$' %"$"&%6' (1%' 81 "' '' 2, +#'$6
(' !#%%1'&%'-&.&%6' '' !$+1' 2,#4 +#6' '' !#'+% -' !$+16' 1' '' 4 "$6
1,' !1' '' 4 "$6' 1' $'"&' (4#," '%6' #,' 1,' !1' $'"&' (4#," 1%' E, "'
#8' '",?' +1,' $@$"&%&'"' E, "' #8' '",?' T1$,&' &>&! "' '81$' "&,% '1%6'
#,' (' "&,% '1%' C1' 2,+&"&, "6' #,' $1+$' %$", %#' ' 2,$&-#!1" ' E, "'
#8' &-6' &+$ &-6' ,&+$ &-6' #+ '$.&6' #,' 12&,' #@ "6' E, "' #8' E$+"&6
E, "' #8' 5$," " #'6' E, "' #8' 3 +!& "6' E, "' #8' T1#(' &' (&8#,!&$"' E, "' #8'
#4&'$'"' ,&$-6' E, "' #8 E$,,$'" $' !)$,"$&' E, "' #8' 1, $' !-$1(&'($6'
#,' E, "'2&,' C1"&' +&,4 " $6' $'(' '# #")&,' !" #'' ,&$-' #,' % 9&(' X&9!&2"' &9!&2"'. /'
$' E, "' #8' .)"' #8' 3#*&,6' #,' E, "' #8' 3#*&,' 1'(&' ') -')$@&"6' #,' $
T1$,&' %2&("6' #,' $"' >&!"%&'"6[' $'(' '# 5-$ '"' '' ")&' $"1,&' #8' $'?'
+1!)' E, "' #,' !" #'' X&9!&2"' $' 5-$ '"' 8#,' ,&&@&'!)' #,' 3#*&,[6' +)$--'
@&' @,#1.)"' $8"&,' ")&') ,"?B8 ,+"' 3$?' #8' ' *" ' '&' ")#1+$'(' & .)"'
)1'(,&(' $'(' ") ,"?B8#1,

< ' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(')$"' *)&'6' =D27' H3 #E'
#'' ")&' +$ (') ,"?B8 ,+"' 3$?' #8' ' *" ' !$ ' ")#1+$'(' & .)"')1'(,&(
$'(' ") ,"?B8#1,6' $'?' 5&,+#'' *)#' +)$--' '#"')$4&' $' .)"' #8' '",?' "#' $'?' , I#D'
$'(' +)$--' @&' &'" "-&(' "#' %$ '"$ '' $'?' +1!)' E, "' #,' !" #'' $+' $8#,&B' 0'
+$ (' '' ,&+2&!"' #8' +1!)' $'(6' +1!)' E, "' #,' !" #'' %$?' @&' @,#1.)"' $"'
$'?' %&' @&8#,&' ")&' ,+"' 3$?' #8' & ' '&' ")#1+$'(' & .)"')1'(,&('
$'(' ") ,"?B8 4&' '' !$+&' ")&' +$%&' % .)"')$4&' @&&'' @,#1.)"' 8' ") +'
!"')$(' '#"' @&&'' %$(&6' '#"* ")+"$'(' '.' ")&' 5&, #(' #8' *&'"?' &$,+'
)&,& 'B@&8#,&' - % "&(' +)$--')$4&' &92 ,&(

< ' 5,#4 (&(' $-+#6' $'(' @&' "' 81,")@,' &'$!"&(6')$"' *)&'6' #'' 2F #4' 3"D'
")&' +$ (' ,+"' 3$?' # 8 ' & ' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B + ^A
8 4&6' $'?' 5&,+#'' *)#+&' .)"' #8' '",?' "#' $'?' $'(' +)$--')$4&' @&&'' 7&(A"#' ,&$ A'
"$:&'' $*$?' @?' $'?' 3&+!&'"' !$+"' 3 +!#'" '1$'!&6' #,' E$,,$'"?6' % .)"' H3 #E' #76'
%$ '"$ '' $'?' +1!)' E, "' #,' !" #'' $+' $8#,&+$ (' '' ,&+2&!"' #8' +1!)' 23' 3"D' (/#'
$'(6' +1!)' E, "' #,' !" #'' %$?' @&' @,#1.)"' $8"&,' ")&' +$ (' ,+"' %&'!&%&'"
3$?' #8' & ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8 4&6' @1"' #'-?
* ") '' ")&' 5&, #(' (1, '.' *) !)' @?' 4 ,"1&' #8' ")&' 5,#4 + #'+' #8' ") +'
!"' $'' '",?' % .)"')$4&' @&&'6' %$(&' 12#'' ")&' +$%&' $'(' @?' ")&'
5&,+#'' @, '.' '.' +1!)' E, "' #,' !" #'' 8') +' .)"' #8' '",?')$(' '#"'
@&&'' +# "$:&'' $*$?

' '(' @&' "' 81,")&,' &'$!"&(')$"' '# 3&+!&'"' !$+"6' 3 +B') ' *DEHD#3!'
!#'" '1$'!&6' #,' E$,,$'"?' *) !)' %$?')$22&'' #,' @&' %$(&' $8"&,' ")&' E$,,$'"?6'
+$ (') ,"?B8 ,+"' 3$?' #8' ' *" ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' $= 4"3' #8
") ,"?B")' ,&&' +)$--' "#--' #,' (&8&$"' $'?' .)"' #8' '",?' #,' !" #'' 8#,' ")&' #3/6'
&!#4&,?' #8' $'(

' '(' @&' "' 81,")&,' &'$!"&(')$"' $8"&,' ")&' +$ (') ,"?B8 ,+"' 3$?' B #D6'
#8' ' *" ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B")' ,&&' '#' !" #'' H"2/4DG' IC #
#,' 1 "' #,' #")&,' 5,#!&&(' '.' +)$--' @&' @,#1.)"' "# ,&!#4&,' $'?' 1%' #8 2#G' 2#G'
#'&?' +&!1,&(' @?' $'?' #,".$.&6' R1(.%&'"6' #,' &'6' #,' #")&,* +&' D42H DE' 3'
!)$,.&(' 12#'' #,' 2$?$@-&' #1"' #8' $'?' $'(' #,' &'"6' $"' $*' #,' '' OD' GDD O DG'
C1 "?6' #,' $'?' &.$!?6' @1"' * ") '' *&'"?' &$,+' '&9"' $8"&,' $' 2,&+&'"' E23 E. DG' 23'
.)"' "#' ,&!& 4&' ")&' +$%&' +)$--')$4&' $!!,1&(' "#' +#%&' 5&,+#'' !2@-&' 3"D' #G' .'
#8' . 4 '.' $' 3 +!)$,.&' 8#,' #,' &-&$+&' # ' ")&' +$%&6' 1'-&++' '' ")&' %&$'N ZD#36 - D2/E'
" %&' +#%&' 5$,"' #8' ")&' 5, '! 2$-' #'&?6' #,' +#%&' '"&,&+"' ")&,&#'6' .'3"D/D' E"27'
+)$--')$4&' @&&'' 2$ (6' #,' +#%&' !:'#*-&(.%&'"' #8' ")&' .)"' ")&,&"#' OD' # ' #3D/DE3'
+)$--')$4&' @&&'' . 4&'' '' E, " '.' + .'&(' @?' ")&' 5&,+#'' @?' *)#%' ")& C2 G' /' H^
+$%&]# Z7DG4^
O D#3' #
@/ 3 #4' #

QQ %' L' ' K' B ' ' (2C

3"D' OD2#^ 3 OD

+$%&' +)$--' @&' 2$?$@-&6' #,') +' .&'"6' "#' ")&' 5&,+#2' &'" "-&(' ")&,&"#' #,') +' .&'"' $'(' +1!)' $+&' '#' +1!)' !"#' #,' 1" #,' 5,#!&&('.' +)$--' @&' @,#1.)" @1" *") ' *&'"?' &$,+' $8"&,' +1!)' 5$?%&'" #,' !:'#*-&(.>'&'"6' #,' ")&' -$+" #8' +1!)' 5$?%&'"+' #,' !:'#*-&(.%&'"+' 8' %#,&' ")$' '&6' *$+' . 4&'

H ' //D2/E' .' * ZD/' 3 ' OD' /DH FD/DG' . /' O /D' 3"2# &' -D2/E

' '(' @&' "81,")&,' &'$!"&(')$" $8"&,' ")&' +$ (') ,"?B8 ,+8' 3$?' #8' ' *" ' '&' ")#1+$'(' & .)")1'(,&(' $'('") ,"?B"),&&' '#' ,,&$,+' #8' 3#*&,6' '#,' $'?' 3$%$.&+' #' $!!#1' #8' +1!)' ,,&$,+6' +)$--' @&' ,&!#4&,&(' #,' #@"$ '&(' @?' $'?' !"#' #,' 1" 8#,' $' -#'.&,' 5&, #(' ")$' 9' &$,+' '&9" @&8#,&' ")&' #% '&'!&%&'" #8' +1!)' !"#' #,' 1"

) ' //D2/E' #8' =D#3' /' #' 3D/DE3' 3 ' OD' /DH FD/DG' . /' O /D' 3"2# &' -D2/E

' '(' @&' "81,")&,' &'$!"&(')$" $8"&,' ")&' +$ (') ,"?B8 ,+" *26' ' *" ' '&' ")!1+$'(' & .)")1'(,&(' $'('") ,"?B"),&&' '#' ,,&$,+' #8' &'" #,' #8' '"&,&+" ,&+2&!" #8' $'?' 1%' #8' #'&?' !)$,.&(' 12#' #,' 2$?$@-&' #1" #8' $'?' $'(' #,' &'"6' #,' ,&+2&!" #8' $'?' &.$!?6' #,' $'?' 3$%$.&+' ,&+2&!" #8' +1!)' ,,&$,+' #8A' &'" #,' '"&,&+"6')$--' @&' ,&!#4&,&(' @?' $'?' 3 +",&++6' !"#'6' #,' 1" R@18& *") ' 9' &$,+' '&9" $8"&,' ")&' +$%&' ,&+2&!" 4&-?' +)$--')$4&' @&!#%&' (1&6' #,' '&9" $8"&,' $' !:'#*-&(.%&'" #8' ")&' +$%&')' E," '.' +)$--')$4&' @&&' . 4&' "#' ")&' 5&,+#' &'" "-&(' ")&,&"#6' #,') +' .&'"6' + .'&(' @?' ")&' 5&,+#' @?' *)#%' ")&' +$%&' *$+' 2$?$@-&6' #,') +' .&'"' 5,#N 4 (&(' '&4&,")&-&++6' ")$" *)&,&' $'?' 2, #,' #,".$.&&' #,' #")&,' 'N !1%@,$'!&,' +)$--')$4&' @&&' ' 5#++&++ #' #8' $,"?' $'(6' #,' ")&' &!& 2" #8' ")&' 5,#8 "+' ")&,&#86' *") ' '&' &$,' '&9" @&8#,&' $' !"#' #,' 1" +)$--' @&' @,#1.)" @?' $'?' 5&,+#' &'" "-&(' "#' $' +1@+&C1&'" #,".$.&' #,' #")&,' '!1%@,$'!&' #' ")&' +$%&' $'(6' ")&' 5&,+#' &'N ""-&(' "#' +1!)' +1@+&C1&'" #,".$.&' #,' '!1%@,$'J0&' %$?' ,&!#4&,' +1!)' !"#' #,' 1" ")&' ,,&$,+' #8' '"&,&+" *) !)' +)$--')$4&' @&!#%&' (1&' (1, '.' ")&' *)#-&' %&' ")$" +V!)' 2, #,' #,".$.&&' #,' #(/2' @,$'!&,' *$+' +1!)' 5#++&++ #' #,' &!& 2" $+' $8#,&+$ (6' $-")#1.)' +1!)' %&' %$?')$4&' &9!&&(&(' ")&' +$ (' &,%' #8' 9' &$,+

!" "#' D&3D#G' 3 ' 3"D' 2,B' 3I27' (I/3E'

' '(' @&' "81,")&,' &'$!"&(')$" $8"&,' ")&' +$ (') ,"?B8 ,+" 3$?' #8' ' *" ' '&' ")#1+$'(' & .)")1'(,&(' $'('") ,"?B"),&&' '#' 5&,+#' !-$% '.' $'?' ")&+6' &.$!?6' #,' #")&,' 5,#2&,"?' 8#,' ")&' &!#4&,?' #8' *) !)')&' % .)" @, '.' $' !"#' #,' 1" $" $*' #,' C1"?6' +)$--' @, '.' $' 1" #,' #")&,' 5,#!&&('.' $'?' 2,"1$-' #1," "#' ,&!#4&,' ")&' +$%&' @1" *") ' ")&' 5&, #(' (1, '.' *) !)')&' % .)" @, '.' +1!)' !"#' #,' 1" $" $*' #,' C1"?

H3' # 3' 3 ' D&3D#G' 3 ' H 3?2#G' # / 3 GF ZE #E' # /D?2#G

< ' 5,#4 (&(' $-*$?+6' $'(' @&' "81,")&,' &'$!"&(')$" ") +' !" +7$--' '#" &9"&'(' "#' -' $'(' +)$--' '#"6' +#' 8$,' $+' ,&-$"&+' "# $'?' .)" "#' 2&,% "#' #,' @&+"#*' $'?')1,!)6' < !$,$.&6' #,' #")&, !!-&+ $+" !$-' &'&8 !&6' &9"&'(' "#'

H3' O26' @& 2OD#GDG'

< ' '(' @&' "81,")&,' &'$!"&(')$" ") +' !" %$?' @&' $%&'(&(6' $-"&,&(6' #,' ,&2&$-&(' (1, '.' ") +' 2,&+&'" &++ #' #8' 5$,- $%&'"

Z TV

(+

H3 3 /DCD27 2# H3 . 3"D " /3DD#3" -D2/ .
> E B25DE36 ? #4 3"D A /E3! . / 3"D OD33D/
=D4 I723 # . 3"D @ 77D# /2GD
[3" Q _

= $' !" *$+ 2$++&(' ")&) ,"&&'") &$, #8
")& & . ' #8 + $>&+"? D ' . ")& ,+"6 '" "1-&(
' " I / 2 7 H
' * >
- * 5 * 1
" 5$ 6) B F
> * 7 / +* F /
U '(*)&,&$+ ")& +$ (!" + $" ") + 3$? '#" #'-? 1'N
'&!&++$,?6 @1" 8 &'8#,!&(% .)" @& &9",&%&-? '>1, #1+ $'(" +
")&,&8#,& &92&(&'" "# ,&2&$- ")& +$%&] & " ")&,&8#,& &'$!"&(@? &! "&(!"
")& D '.;+ %#+" 9!&--&'" $>&+"?6 @? $'(* ") ")& (4 !& $'(/DCD27DG
#'+&'" #8 ")& #,(+ 2 , "1$- $'(&%2#,$-6 $'(#%%#'+6 ' ") +
2,&+&'" 5$,- $%&'" $++&%@-&(6 $'(@? ")& 1")#, "? #8 ")& +$%&
)$" ")& +$ (,&! "&(!" @& $'(")& +$%& +)&,&@? ,&2&$-&(

3] 5, '"&(@? $'(
5, '"&,+ "# ")& D '.;+ %#+" 9!&--&'" $>&+"?

R3

Z TV

(+

H3 3 O2]D .I/3"D/ +/ FE #E Z 3" /DECDH3
3 3"D +26 OD#3 . +D#E #E 4/2#3DG . / D/F HD
3"D = 627 /3 77D/6! #4 #DD/E! 2#G 3"D/
B 7 32/6 (/CE I#GD/ 3"D (#3/ I7 . 3"D B2E3D/
D#D/27 2#G 2/G . ' /G#2#HD! 2#G Z 3" /DECDH3
3 *DGIH3 #E "D/D2.3D/ 3 OD O2GD ./ O +D#^
E #E 4/2#3DG O6 3"D (O O EE #D/E . =
> EC 327 [3" ! * Q _

@ " +&92&(&'"")$" ")& 5&'+ #'+6 --#*$'!&6 $'(
&- &8 2$?$@-& "# #-(&,+ $'(#")&,+ (+$@-&(6 '4$- (6 #,
(+!)$,.&(8,#%6 ")& #?$- ," --&,?6 ' . '&&,+6 $'(#")&,
- "$,? #,2+6 *) !))$4&) ")&,"# @&&' .,$'"&($'(2$ (@? #,
1'(&, ")& 1")#, "? #8 ")& #$,(#8 ,('$'!&6 +)#1-( )&,&$8"&, @&
.,$'"&($'(2$ (@? $'(1'(&, ")& 1")#, "? #8 ")& #,(+ $'(
#")&,+ #%% ++ #'&,+ #8 ")& #?$- #+2 "$- 8#, #-(&,+ $"
' ")& #1'"? #8 8 1'(&, ")& - :& 1-&+6 5,#4 + #'+6 $'(
&.1-$" #'+ $+ 5&'+ #'+6 --#*$'!&+6 $'(&- &8 .,$'"&("# #")&,
(+$@-&(6 '4$- (6 $'((+!)$,.&(#-(&,+ @& " ")&,&8#,& &'$!"&(
@? ")& D '.;+ %#+" 9!&--&'" $>&+"?6 @? $'(* ") ")& (4 !& $'(
#'+&'" #8 ")& #,(+ 2 , "1$- $'(&%2#,$-6 $'(#%%#'+6 '
") + 2,&+&'" 5$,- $%&'" $++&%@-&(6 $'(@? ")& 1")#, "? #8 ")& +$%&
)$" 8,#%6 $'($8"&, ")& 2$++ '. #8 ") + !" ")& *)#-& #8 ")& +$ (
5&'+ #'+6 --#*$'!&+6 $'(&- &8 2$?$@-& "# #-(&,+ $'(#")&,+
:P (+!)$,.&(

+D#E #E
"D/D3 . /D
4/2#3DG O6
3"D 2/G :
' /G#2#HD 3
OD 4/2#3DG O6
3"D (O/#E

E #D/E' .
("D7ED2
> EC 327

(+!)$,.&(' 8,#%' ")&' #?$-' ," --&,?6' '. '&&,+6' $'(' #")&,' -"$,?'
#,2+' *) !)')$4&' @&&'')&,&"#8#,&' .,$'"&(' $'(' 2$ (' @?' ")&' +$ ('
$+"&,' H&'&,$-' $'(' #$,(' #8' ,('$'!&6' +)$--' @&' .,$'"&(' $'(' 2$ ('
@?' $'(' @&' 1'(&,' ")&' 5#*&86' $'$.&%&'"6' #'",#1-6' 3 ,&!" #'6' $'('
1")#, "?' #8' "88&' +$ (' #%% ++ #'&,+' #8' 2 #+2 "$-

=D4I723 #E'
/D723 #4' 3 '
/ 06' +D#^
E #E' 3 ' OD'
2CC7 H2O7D' 3 '
+D#E #E'
4/2#3DG'
I#GD/' 3" E'
H3

' '(' @&' "' 81,")&,' &'$!"&(')$"' $-' ")&' -$1+&+6' 1-&+6' &.1N
-$" #'+6' 5#*&,+6' 5$ '+6' #,8& "1,&+6' $""&,+6' $'(') '.+' !#'"$ '&('
'' $'?' !"' #,' !"+' #8' 5$,- $%&'"' '#*' '' 8#,!&' ,&-$" '.' "#' 5&'+ #'+'
.,$'"&(' #,' "#' @&' .,$'"&(' "#' (+$@-&(6' '4$- (6' #,' (+!)$,.&(' #-(&,+6'
+)$--' @&' $22- !$@-&' $'(' $22- &(' $'(' 21"' '' 8#,!&' 8#,' ")&' 51,2#+&+' #8'
") +' !"6' * ")' ,&+2&!"' "#' $--' +1@+ +" '.' 5&'+ #'+' $-,&$(?' .,$'"&(' @?'
")&' #$,(' #8' ,('$'!&' #'' $!!#1'"' J_8 ")&' &,4 !&+')&,& 'B@&8#,&'
%&'" #'&(6' $'(' "#' $--' 5&'+ #'+6' &- &86' $'(' --#*$'!&+')&,&$8"&,' "#'
)&' .,$'"&(' $'(' 2$?$@-&' "#' #-(&,+' $'(' #")&,+' #'' $!!#1'"' #8' 71!)'
&,4 !&+6

*DGIH3 #'
./ 0' +D#^
E #E' 3 ' OD'
%' CD/' (D#3f'
#E3D2G' .'V
CD/' (D#3f' #
3"D' (2EDE'
"D/D # 2.3D/'
OD#3 #DG

' '(' @&' "' &'$!"&(6')$"' ")&' ,&$+1,&,' #8' ' #+2 "$-'
+)$--' $'(' %$?' * "))#-(' $'(' (&(1!"' 8,#'" $'(' #1"' #8' $--' #' &+'
*) !)' +)$--' $'(' %$?' @&' $22- !$@-&' "#' ")&' 5$?%&'"' #8' 5&'+ #'+'
.,$'"&(' #,' "#' @&')&,&$8"&,' .,$'"&(' @?' ")&' #%% ++ #'&,+' #8' '
#+2 "$-' "#' $'?' (+$@-&(6' '4$- (6' #,' (+!)$,.&(' #-(&,+6' ," --&,?N
%&'6' #,' #")&,' 5&,+#'+' $+' $8#,&+$ (6' *)#' +)$--')$4&' &'- +"&(' + '!&' ")&'
,+"' 3$?' #8' '-$+"6' #,' *)#' +)$--')&,&$8"&,' &'- +"6' ")!' 1%' #8'
92&'!&' '' ")&' 5#1'(' #'-?' '+"&$(' #8' '&') -- '.' '' ")&' 5#1'('
*) !)')$+')&,&"#8#,&' @&&'' (&(1!"&(' @?' ")&' +$ (' ,&$+1,&,' #8' '
#+2 "$-6' $'(' *) !)' +' "#' !#'" '1&' "#' @&' (&(1!"&(' 8,#%' $--' 5&'+ #'+'
.,$'"&(' 8#,' &,4 !&+' 1'(&,' '- +"%&'"+' *) !)')$<&' "$:&'' 2-$!&' 2,&N
4 #1+-?' "#' ")&' +$ (' ,+' 3$?' #8' '-$+"6' +1@>&!"' "#' ")&' 8#--#* '.'
5,#4 +#' #,' 9!&2" #'' X")$"' +' "#' +$?[]' 5,#4 (&(' '&4&,")&-&++6' ")$"'
'#' 3&(1!" #'' +)$--' @&' %$(&' @?' ")&' +$ (' ,&$+1,&,' #8' ' #+2 "$-'
8,#%' $'?' 5&'+ #'+' *) !)')$4&' $-,&$(?' @&&'' .,$'"&(' @?' ")&' +$ ('
$+"&,' H&'&,$-' $'(' #$,(' #8' ,('$'!&' * ")#1"' @&' '.' +1@>&!"' "#'
$'?' 3&(1!" #'+6' $'(' ")&' 1%' #8' 92&'!&' '' ")&' 5#1'(' #'-?' +)$--'
@&' (&(1!"&(' 8,#%' +1!)' 5&'+ #'+' $+')$4&' @&&'' .,$'"&(' @?' ")&' +$ ('
$+"&,' H&'&,$-' $'(' #$,(' #8' ,('$'!&' +1@>&!"' "#' +1!)' 3&(1!" #'' #8'
92&'!&' '' ")&' 5#1'(' #'-?' $'(' $--' +1!)' 3&(1!" #'+' $+' $,&')&,& 'N
@&8#,&' (,&!"&(' "#' @&' %$(&' @?' ")&' +$ (' ,&$+1,&,' #8' ' #+2 "$-'
+)$--' !#'" '1&' "#' @&' $22- &(' $!!#,('.' "#' ")&' 5,#4 + #'+' #8' $"' !"'
2$++&(' '' ")&' *&'"?B& .)")' &&,' #8' ")&' & .'' #8' +' $>&+"? D '.'

Q' ' ' H' ' ")&' &!#'(6' '" "1-&(' ' ' ' ' ' ' ! 2>
' ') ' ')&-+&$

'/GD/E' . /'
+260D#3' .'
+/ dD' # 3' D&^
HDDG #4' UE f'
D&DH I3DG' #
3"D' # 3DG'
? #4G 0f' 3 '
OD' D&D 0 C3'
./ 0' 32 0C
* I36N' 2#G'
'# ' ADD' . /'
.. G2F 3E

<' '(' @&' "' &'$!"&(6')$"' $--' ,(&,+' %$(&' @?' #'!#%N
% ++ #'&(' 8 !&,+' $'(' #-(&,+' -#,' ")&' 5$?%&'"' #8' 5, L&' #'&?6'
&9&!1"&(' ''$'?' 5$,"' #8' ")&' V' "&(' D '.(#%6' 8#,' 1%+' '#"&9!&&('.'
#,"?') -- '.+6' +)$--' @&' &9&%2"' 8,#%' "$%2' 31"?6' $'(' 8#,' 1%+'
&9!&&('.' #,"?') -- '.+' +)$--' @&' +1@>&!"' "#' $' "$%2' 31"?' #8' '&'
) -- '.' #'-?' ' $'(' ")$"' '#' && #,' 5$?%&'"' *)$"&4&,' +)$--' @&'
(&%$'(&(' #,' "$:&'' 8,#%' $'?' 1"B5&'+ #'&,' #8' ' #+2 "$-6' #,'
!)$,.&(' $.$ '+"') %6' 8#,' $(% ' +"&, '.' #,' $""&+" '.' $'?' $")' '&!&+N
+$,?' #,' ,&C1 ,&(' "#' @&' "$:&'' 8#,' ")&' &!& 2"' #8' $'?' 5&'+ #'' #,
;' --#*$'!&

; ' L B (2C V

--#*$'!& #8 #'&? 2$?$@-& $'' #, 8,#% #+2 "$-6 #, 8#,
")& %$: '. #, &9&!1" '. #, $""&+" '. $'? ++ .'%&'" #8 1"B
5&'+#'6 #, ,(&,+ #8 R1+" !&+ ,&-$" '. "# $'? 1"B5&'+#'6 #, "# $'?
5$?%&'"#' $!!#1'" ")&,&#8 7

3] 5, '"&(@? $'(
5, '"&,+ "# ")& D '.;+ %#+" 9!&--&'" $>&+"?

' ' Z' T V

s

(+ '

H3' 3 ' D&DOC3' ./ O' + /' 2#G' ("I/H"' =23DE'
2?7' ("I/H"DE!' ("2CD7E!' 2#G' 3"D/' +72HDE' .' =D^
74 IE' @ /E" C'   [3"' ! *' Q _

E ' "' +' &92&(&'"' ")$"')1,!)&+6')$2&-+6' $'('
#")&,' 5-$!&+' &9!-1+ 4&-?' $22,#2, $"&(' "#' 21@- !' &- . #1+'
E#,+) 2' +)#1-(' @&' &9&%2"' 8,#%' ")&' 5$?%&'"' #8' 5##,'
$'(')1,!)' $"&+] &' "' ")&,&8#,&' &'$!"&(' @?' ")&' D ' . ;+' %#+"'
9!&--&'"' $>&+"?6' @?' $'(' * ")' ")&' (4 !&' $'(' #'+&'"' #8' ")&'
#,(+' 2 , "1$-' $'(' &%2#,$-6' $'(' #%%#'+6' '' ") +' 2,&+&'"' 5$,N
- $%&'"' $++&%@-&(6' $'(' @?' ")&' 1")#, "?' #8' ")&' +$%&6')$"' 8,#%'
$'(' $8"&,')&' ,+"' 3$?' #8' ! " ' '&' ")#1+$'(' & .)"')1'(,&(' $'('
") ,"?B"),&&' '#' 5&,+#'' #,' 5&,+#'+' +)$--' @&' ,$"&(' #,' +)$--' @&' - $@-&'
"#' @&' ,$"&(6' #,' "#' 2$?' "#' $'?')1,!)' #,' 5##,' $"&+' #,' &++&+6'
8#,' #,' '' ,&+2&!"' #8' $'?')1,!)&+6' 3 +", !"')1,!)&+6')$2&-+6'
&&" ' .' #1+&+6' #,' 5,&% +&+6' #,' +1!)' 5$,"' ")&,&#8' $+' +)$--' @&' &9N
!-1+ 4&-?' $22,#2, $"&(' "#' 21@- !' &- . #1+' E#,+) 26' $'(' *) !)' X#")&,'
")$'')1,!)&+6' 3 +", !"')1,!)&+6' $'(' 2 +!#2$-')$2&-+' #8' ")&'
+"$@- +)&(')1,!)[' +)$--' @&' (1-?' !&," 8 &(' 8#,' ")&' 5&,8#,%$'!&' #8'
+1!)' &- . #1+' E#,+) 2' $!!#,(' .' "#' ")&' 5,#4 + #'' #8' $'?' !"'
#,' !"+' '#*' '' 8#,!&] 5,#4 (&(' $-*$?+6' ")$"' '#' 5&,+#'' #,' 5&,+#'+'
+)$--' @&')&,&@?' &9&%2"&(' 8,#%' $'?' +1!)' $"&+' #,' &++&+' 8#,' #,' ''
,&+2&!"' #8' $'?' 5$,"+' #8' +1!)')1,!)&+6' 3 +", !"')1,!)&+6')$2&-+6'
&&" ' .' #1+&+6' #,' #")&,' 5,&% +&+' *) !)' $,&' '#"' +#' &9!-1+ 4&-?'
$22,#2, $"&(6' $'(' 8,#%' *) !)' 5$,"+' '#"' +#' &9!-1+ 4&-?' $22,#B'
Q' '   2, $"&(

) ' +D/E #E' 7 2O7D' 3 ' OD' /23DG'. /' +72HDE' D&^ H7 I E FD76' 2C^ C/ C/ 23DG' 3 ' CIO7 H' =D^ 74 IE' @ /^ E" C

+/ F E ' /DECDH3 #4' +72HDE' # 3' E ' D&H7 I E FD76' 2CC/ C/ 23DG

Q aa B ʿ ʿ (2C U

2, $"&(ʿ +1!)ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ +)$--ʿ ,&!& 4&ʿ $'?ʿ &'"ʿ #,ʿ &'"+6ʿ #,ʿ +)$--ʿ (&, 4&ʿ 5,#8 "ʿ #,ʿ (4$'"$.&

+D/E #Eʿ # 3ʿ
7 2O7Dʿ 3 ʿ
=23DEʿ ODʿ^
H2IEDʿ +2/3ʿ
.ʿ+/DO EDEʿ
O26ʿ ODʿ IEDGʿ
. /ʿ H" 7E

ʿ 5,#4 (&(ʿ $-*$?+6ʿ $'(ʿ @&ʿ "ʿ &'$!"&(6ʿ)$"ʿ '#ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ +)$--ʿ @&ʿ - $@-&ʿ "W$'?ʿ +1!)ʿ $"&+ʿ #,ʿ &++&+ʿ @&!$1+&ʿ ")&ʿ +$ (ʿ)1,!)&+6ʿ 3 +", !"ʿ)1,!)&+6ʿ)$2&-+6ʿ &&" '.ʿ #1+&+6ʿ #,ʿ #")&,ʿ 5,&% +&+6ʿ #,ʿ $'?ʿ <&+",?ʿ ##%+ʿ @&-#'. '.ʿ ")&,&"#6ʿ #,ʿ $'?ʿ 5$,"ʿ ")&,&#86ʿ %$?ʿ @&ʿ 1+&(ʿ 8#,ʿ ʿ #,ʿ '8$'"ʿ !)##-+6ʿ #,ʿ 8#,ʿ ")&ʿ !)$, "$@-&ʿ (1!$" #'ʿ #8ʿ ")&ʿ 5##,

3] 5, '"&(ʿO6ʿ ʿ ʿ$'(ʿ ʿ ʿ
5, '"&,+ʿ "#ʿ ")&ʿ D '.;+ʿ %#+"ʿ 9!&--&'"ʿ $>&+"?ʿ

ʿ ʿ Zʿ TV

ʿ ʿ

(+ ʿ

#ʿ H3ʿ 3 ʿ D#2O7Dʿ 3"Dʿ 7DH3 #ʿ .ʿ ' .. HD/Eʿ .ʿ (/C ^
/23 #Eʿ 2#Gʿ 3"D/ʿ + I O7 Hʿ (OC2# DEʿ # Zʿ /D\ I /DGʿ
3 ʿ ODʿ "D7Gʿ # 3"Dʿ /Gæʿ * 26ʿ 3 ʿ ODʿ "D7Gʿ # 3"Dʿ
*ʿ #D&3ʿ C/DHDG #4!ʿ /ʿ # 3"Dʿ - *ʿ #D&3ʿ
D#E I #4ʿ [3"ʿ ! *ʿ Q ,

@ ʿ ")&ʿ 5,#8$'$" #'ʿ #8ʿ ")&ʿ #,(;+ʿ 3$?ʿ +ʿ .,&$"-?ʿ
'!,&$+&(ʿ @?ʿ ,&$+#'ʿ #8ʿ !&,"$ 'ʿ &&" '.+ʿ *) !)ʿ $,&ʿ 1+1$--?ʿ
#,ʿ #!!$+ #'$--?ʿ)&-(ʿ ")&,&#'ʿ] '(ʿ *)&,&$+ʿ "ʿ +ʿ ")&ʿ 31"?ʿ
#8ʿ ")&ʿ &. +-$"1,&ʿ "#ʿ ,&%#4&ʿ $+ʿ %1!)ʿ $+ʿ 2#++ @-&ʿ %2&(%&'"+ʿ "#ʿ ")&ʿ
(1&ʿ @+&,4$'!&ʿ #8ʿ ")&ʿ #,(;+ʿ 3$?ʿ @&ʿ "ʿ ")&,&8#,&ʿ &'$!"&(ʿ @?ʿ ")&ʿ
D '.;+ʿ %#+"ʿ 9!&--&'"ʿ $>&+"?6ʿ @?ʿ $'(ʿ * ")ʿ ")&ʿ (4 !&ʿ $'(ʿ #'+&'"ʿ
#8ʿ ")&ʿ #,(+ʿ 2 , "1$-ʿ $'(ʿ &%2#,$-6ʿ $'(ʿ #%%#'+6ʿ 'ʿ ") +ʿ 2,&N
+&'"ʿ 5$,- $%&'"ʿ $++&%@-&(6ʿ $'(ʿ @?ʿ ")&ʿ 1")#, "?ʿ #8ʿ ")&ʿ +$%&ʿ)$"ʿ
&4&,?ʿ &&" '.ʿ #,ʿ $(>#1,'&(ʿ &&" '.ʿ #8ʿ $'?ʿ <&+",?ʿ #,ʿ #,2#,$" #'6ʿ
*)&")&,ʿ !!-&+ $+" !$-ʿ #,ʿ 4-6ʿ #,ʿ #8ʿ $'?ʿ 21@- !ʿ #%2$'?6ʿ 8#,ʿ ")&ʿ
#% '$" #'6ʿ -&!" #'6ʿ 22# '"%&'"6ʿ +*&$, '.ʿ '6ʿ #,ʿ (% ++ #'ʿ #8ʿ $'?
88 !&,ʿ #,ʿ 88 !&,+6ʿ #,ʿ 8#,ʿ ")&ʿ ,$'+$!" #'ʿ #8ʿ $'?ʿ #")&,ʿ +&!1-$,ʿ 88$,ʿ
#8ʿ +1!)ʿ <&+",?6ʿ #,2#,$" #'6ʿ #,ʿ #%2$'?6ʿ $'(ʿ &4&,?ʿ #")&,ʿ &&" '.ʿ
#8ʿ $ʿ 21@- !ʿ $'(ʿ +&!1-$,ʿ $"1,&6ʿ *) !)6ʿ $!!#,('.ʿ "#ʿ $'?ʿ !"ʿ #8ʿ
5$,- $%&'"6ʿ #,ʿ $!!#,('.ʿ "#ʿ $'?ʿ)$,"&,6ʿ H,$'"6ʿ #'+" "1" #'6ʿ 3&&(6ʿ
&+"$%&'"6ʿ $*6ʿ 5,&+!, 2" #'6ʿ #,ʿ V+$.&ʿ *)$"+#&4&,6ʿ +ʿ #,ʿ +)$--ʿ @&ʿ
,&C1 ,&(ʿ "#ʿ @&ʿ)&-(ʿ #'ʿ $'?ʿ #,(;+ʿ 3$?6ʿ #8ʿ #'ʿ $'?ʿ 3$?ʿ *) !)ʿ +)$--ʿ
)$22&'ʿ "#ʿ @&ʿ #'ʿ $ʿ #,(;+ʿ 3$?6ʿ +)$--ʿ @&ʿ)&-(ʿ #'ʿ ")&ʿ ʿ '&9"ʿ
2,&!&('.ʿ #,ʿ #'ʿ ")&ʿ ʿ '&9"ʿ (+1+ '.6ʿ $"ʿ ")&ʿ - :&ʿ #1,6ʿ *")ʿ
Qʿ Hʿ - :&

7DH3 #Eʿ .ʿ
' .. HD/Eʿ .ʿ
(/C /23 #Eʿ
2#Gʿ 3"D/ʿ
C I O7 Hʿ (O^
C2# DEʿ # Zʿ
/D\ I /DGʿ 3 ʿ ODʿ
"D7Gʿ # 2
I #G26ʿ E"27ʿ
ODʿ "D7Gʿ #
3"Dʿ 23 I /G26ʿ
C/DHDG #4ʿ /ʿ
3"Dʿ B #G26ʿ
. 77 Z #4

U L L B (2C

- :& #,%' $'(' &!"6 $+ 8' ")& +$%&)$(' @&&')&-(' #' +1!)' #,(;+
3 $? ' $'(' &4&,? $""&, ",$'+$!"&('$"$'?'+1!)' &&" '.' #, $(>#1,'&('
&&" '.')&-(' 12#' $'? #,(;+ 3$?' +)$-- @& $@+#-1"(?' 4# (' $'(' #8'
'#'&' &88&!"6 "#' $-- '"&'"+ $'(' 51,2#+&+ *)$" #&4&8] 5,#4 (&('$-*$?+6
")$" *)&' "##7+1!)' #% '$" #'6 -&!" #'6 22# '"' '&'"6 +*&$, '.' '6
#,' (% ++ #' +)$--)$4& "$:&' 2-$!& #' +1!)' &4&,? 5&,+#'
*)#+& &,%' #8' 8- !& *#1-(6 $!!#,('.' "# $'?' +1!)' !"6)$,"&,6
H,$'"6 #'+" "1" #'6 3&&(6 &+"$%&'"6 $*6 5,&+!, 2" #'6 #,' V+$.&6
)$4& &92 ,&(' #' $'?'+1!)' #,(;+ 3$?6 +)$-- !#'" '1& ' 8 !&6 $'('
&9&,! +& $'(' &'>#? $-- ")& 5#*&,+ $'(' 5, 4 -&.&+ $''&9&(' #,' ,&-$" '.'
"# +1!)' 88 !&6 1'" -' $'(' #' +1!)' '' 9" &'+1 '.6 ' ")& +$%&
$''&,' $+ 8' +1!)' ')$(' @&&' ")& !1+"#',$,? 3$?' #8' #% '$N
"#'6 -&!" #'6 22# '"%&'"6 +*&$, '.' '6 #,' (% ++ #'

.' 7DH3 #
G DE # 3 32]D
C72HD # 3"D
23 I /G26 3"D
+D/E # " 7G^
#4 3"D '..HD
3 'H #3 #I D
I#3 7 3"D
E '3 'G '
B #G26

7DH3 #E # 3 ' '(' @& " 81,")&,'&'$!"&(')$" *)&'&4&,' ")& #% '$" #'6
O2GD #EIH" -&!" #'6 22# '"%&'"6 +*&$, '.' '6 #,' (% ++ #'#8'$'?'+1!)' 88 !&,'
7'7$77+)$-' ' 88 !&,+ $+ @&8#,&%&'" #'&('+)$--' '#" "$:&'2-$!& #' +1!>'
@&"&:& #@& #,' ' #,' +)$-- @&!#%& 4# (6 ")& $+& +)$-- @& $'(' +)&,&@?
Z 3" # 3"D (&!-$,&('"# @& * ") ' ")& 5,#4 + #'+ #8 $' !" %$(& $'(' 2$++&(' '
+/ FE #E .' 3"D -&4&'")' &$,' #8 + -$"& $>&+"? D '.' ")& ,+"6 '" B
D H ' * /
. ' ' ' ' ' ' ` ' '(! ' ! ' =
' " ' * ' ' ' ' ' ' " ' ' ' < ' '
' > ' ' ' ' $ ' ' ' . ' ' " '
$ ' * ' $+ 81--? $'(' &88&!"1$--? $+ 8 +1!)' 88 !&,' #,' 88 !&,+
)$(' @&&' &92,&++-? '$%&(' ' ")& +$ (' !"

3] 5, '"&(' @? # # "$ ' $'(' 5 ' 6 '
5, '"&,+ "# ")& D '.;+ %#+" 9!&--&'" $>&+"? '
□

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(+

H3 3 2OD#G 3"D EDFD/27 H3E 2I3" / d #4
GF2#HDE . / H2//6 #4 # +IO7 H @ /]E
[3"! * Q _

E !&,"$ ' #%% ++ #'&,+)$4& @&&' $22# '"&(
1'(&, ")& 1")#, "? #8 $' !" 2$++&(' ")& 8"?B+&4&'")
&$, #8")& & . ' #8 + $>&+"? D ' . H&#, .& ")&) ,(6
'" "1-&(K . 8 7 (V (
1 * *
> " / + 1 <
0 * . * * > H,&$" , "$ '6 *
* U '(*)&,&$+ $'#")&, !" #8 5$,- $%&'" *$+
2$++&(' ")& +$%& &++ #' #8 5$,- $%&'" "# $%&'(")& +$ (,&! "&(
!"] '(*)&,&$+ ")& +$ (,&! "&(!"+)$4& @&&' $%&'(&(6 $'(")&
5#*&,+ ")&,&#8 &9"&'(&(@? +&4&,$- !"+ 2$++&(' ")& 8"?B& .)")
&$, #8 ")& & . ' #8 + $>&+"? D ' . ")&) ,(6 $'('
")& ,+"6) ,(6 #1,")6 8")6 9")6 &4&'")6 $'(&4&'") $'(
.)") &$,+ #8 + -$"& $>&+"? D ' . ")& #1,")] '(
*)&,&$+ ")& +$ (#%% ++ #'&,+)$4& %$(& 4$, #1+ #$'+ $'((4$'!&+
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3 '3"D' E2OD' $'(' !#'+ (&,&('"#')$4&' @&&'' %$(&' @?' ")&' +$ (' #%% ++ #'&,+' 1'(&,'
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72#GE' .' ' 2#G' 3 ' OC/ FD' HD/32 #' #DE'
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3"D 77E 12&, '"&'(&'!& 12#' *) !) #--+ $,& $" 2,&+&' #, +)$--)&,&7
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< ' '(' @&' '' 81,")&,' &'$!"&(')$'' 8' '' +)$--'7$22&$,' "#' ")&' +$ (' #%% ++ #'&,+' "#' @&' &92&(&''' 8#,' ")&' 51@- !' &,4 !&6' '' +)$--' @&' -$*81-' 8#,' ")&%6' * ")' ")&' #'+&''' #8' ")&' &, "#,+' $'(' #%N % ++ #'&,+' #8' 122-?' #8' ")&' #1''?' * ") '' *) !)' $'?' +1!)' 3 +", !'' #$(' #,' , (.&' $+')&,& 'B$8"&,' %&'" #'&(' +)$--' @&' + "1$"&6' '#" 8 &(' $'' +#%&' $''1$-' &&" '.' 8#,' ")&' ++&++%&''' #8' ")&' $'(' $96' #,' $'' +#%&' +2&! $-' (>#1,'%&''' #8' +1!)' &&" '.6' "#' $++1%&' "#' ")&%B' +&-4&+' ")&' $,&' $'(' 12&, '"&'(&'!&' #8' $'?' #$(' $(># ' '.' "#' #,' !#''&!"&(' * ")' $'?' #$(' #,' , (.&' $-,&$(?' 1'(&,' ")&,' 12&, 'N "&'(&'!&6' +1!)' #$(')$4 '.' @&&'' 2,&4 #1+-?' +188 ! &'"-?' %$(&' $'(' ,&2$,&(' "#' ")&' $" +8$!" #'' #8' ")&' +$ (' #%% ++ #'&,+6' $'(' &4&,?' +1!)' #$(' +)$--' ")&'!&8#,")' $'(' ")&,&$8"&,' @&' (&&%&(' $'(' "$:&'' "#' @' 2$,'' #8' ")&' #$(+' $'(' , (.&+' 1'(&,' ")&' $,&' $'(' 12&, '"&'N (&'!&' #8' ")&' +$ (' #%% ++ #'&,+6' $'(' +)$--' @&' %$ '"$ '&(' '' ,&2$,' @?' ")&%' '' ")&' +$%&' $''&,' $+' ")&' 5$,- $%&'"$,?' $'(' -"$,?' #$(+' $'(' , (.&+' 1'(&,' ")&,' $,&' ' $'(' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' &9&,! +&' $--' +1!)' 5#*&,+' $'(' 1")#N , " &+6' 8#,' $'(' '' ,&+2&!'' #8' $'?' +1!)' #$(6' *) !)' ")&?' $,&' $1")#, L&(' $'(' &%2#*&,&(' "#' &9&,! +&' * ")' ,&+2&!'' "#' $'?' #$(' $-,&$(?' 1'(&,' ")&,' $'$.&%&'"] 5,#4 (&(' $-*$?+6' ")$'' ,&.$,(' +)$--' @&')$(' "#' ")&' % "$" #'' #8' ")&' %#1'' #8' ")&' #'&?' $22- !$@-&' "#' ")&' #1''?' *)&,& '' $'?' +1!)' #$(' +)$--' @&' + "1$"&(

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)1'(,&('$'('") ,"?B8#1,6' $'(' "#' (&"&,% '&' #"' ")&' 8")' 3$?' #8'
'&' ")#1+$'('& .)"')1'(,&('$'('") ,"?B8 4&6' "#' $--' '"&'"+6' $'(' 1'(&,'
")&' +$%&' 1-&+' $'(' 5, 4 -&.&+' $+' 8' +1!)' #%2#+ " #'+' ((' '#"' @?' ")&'
Q' ' $*+

Q L $ B ʿ ʿ (2C

$ * +ʿ '# *ʿ 'ʿ 8#, !&ʿ &92 ,&ʿ @&8#,&ʿ ")&ʿ -$+"B%&'" #'&(ʿ 3 $? ʿ $'(ʿ $--ʿ ")&ʿ 5# * &,+ʿ $'(ʿ 5,#4 + #'+ʿ #8ʿ ")&ʿ +&4&,$-ʿ !"+ʿ 2$++&(ʿ ,&-$" '.ʿ "#ʿ $'(ʿ 8#,ʿ !#'" '1 '.ʿ ")&ʿ 31" &+ʿ #8ʿ #%2#+ "#'+ʿ $'(ʿ #'",$!"+ʿ 8#,ʿ !#--&!" '.ʿ ")&ʿ +$%&ʿ)$-8B?&$,-?6ʿ $'(ʿ 8#,ʿ &'8#,! '.ʿ 5$?%&'"ʿ ")&,&#87ʿ +)$--ʿ @&ʿ &9"&'(&(ʿ $'(7$22- &(ʿ "#ʿ ")&ʿ #%2#+ "#'+ʿ $'(ʿ #'",$!"+ʿ !#'" '1&(ʿ 1'(&,ʿ ") +ʿ !"6ʿ "#ʿ $--ʿ '"&'"+6ʿ $+ʿ 8ʿ ")&ʿ +$%&ʿ)$(ʿ @&&'ʿ ,&2&$"&(ʿ $'(ʿ ,&B&'$!"&(ʿ 'ʿ ") +ʿ !"

D&HDC3ʿ #ʿ (2EDEʿ Z "D/Dʿ +2/3 DEʿ E"277ʿ 4 FDʿ) 3 HDʿ Uʿ GD3D/O #Dʿ 3"Dʿ E2ODʿ # 3"Dʿ V3"ʿ .ʿ C/ 7 Q

ʿ 5,#4 (&(ʿ $-*$?+6ʿ $'(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ ") +ʿ !"ʿ +)$--ʿ '#"ʿ &9"&'(ʿ "#ʿ $'?ʿ 5&,+#'ʿ *)#ʿ +)$--ʿ @&ʿ 9 &+ ,#1+ʿ '.ʿ (&"&,% '.ʿ) +ʿ B#,ʿ)&,ʿ #%2#+ "#'ʿ #'ʿ ")&ʿ 8")ʿ 3$?ʿ #8ʿ '&ʿ ")#1+$'(ʿ & .)"ʿ)1'N (,&(ʿ $'(ʿ ") ,"?B8#1,6ʿ $'(ʿ *)#ʿ +)$--ʿ #'ʿ #,ʿ @&8#,&ʿ ")&ʿ &'")ʿ 3$?ʿ '.ʿ ! " ʿ '&ʿ ")#1+$'(ʿ & .)"ʿ)1'(,&(ʿ $'(ʿ ") ,"?B"),&&ʿ .4&ʿ #" !&ʿ ")&,&#8ʿ 'ʿ E, " '.ʿ "#ʿ ")&ʿ ++&++#,ʿ #,ʿ #--&!"#,ʿ #8ʿ ")&ʿ 2$, +)ʿ #,ʿ 5-$!&6ʿ #,ʿ "#ʿ ")&ʿ 1,4&?#,ʿ $!" '.ʿ 'ʿ ")&ʿ 9&!1" #'ʿ #8ʿ ")&ʿ !"+ʿ ,&-$" '.ʿ "#ʿ ")&ʿ 31" &+ʿ #8ʿ ++&++&(ʿ $9&+ʿ 8#,ʿ ")&ʿ 3 +", !"ʿ 'ʿ *) !)ʿ +1!)ʿ #%2#+ "#'ʿ +)$--ʿ @&ʿ 2$?$@-&

H3ʿ O26ʿ ODʿ 273D/DG

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(6ʿ)$"ʿ ") +ʿ "ʿ %$?ʿ @&ʿ $'$&'(&(6ʿ $-"&,&(6ʿ #,ʿ ,&2&$-&(ʿ @?ʿ $'?ʿ !"ʿ #,ʿ !"+ʿ "#ʿ @&ʿ 2$++&(ʿ 'ʿ ") +ʿ 2,&+&'"ʿ &++ #'ʿ #8ʿ 5$,- $%&'"6

3]ʿ 5, '"&(ʿ I ʿ ʿ ʿ $'(ʿ ʿ C E3% ' * !ʿ
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H3 3 ' /DODG6 HD/32 # *D.DH3E 2E 3 ' 3"D
=DH FD/6 . =23DE 2#G EEDEE OD#3E O2GD O6
(OO EE #D/E 2#G 3"D/ +D/E #E I#GD/ G FD/E
#H7 EI/D 2#G */2 #24D H3E 2.3D/ 3"D &DHI3 #
. 3"D . #27 Z2/GE . 3"D E2 G (OO EE #D/E
[3" ! * Q _

E (4&,+ !"+ #8 5$,- $%&'")$4& 8,#% %& "#
%& @&&' 2$++&(8#, ")& '!-#+1,&6 3,$ '$.&6 $'(%N
2,#4&%&'" #8 (4&,+ $'(+6 #%%#'+6 $'(E $+"& H,#1'(+6
)&,& ' #%% ++ #'&,+ $,& &%2#&,&("# +&" #1" $'(%$:& 2, 4$"&
#$(+ $'(3,$ '+6 $':+6 , (.&+6 -1 !&+6 $'('#")&, E #,:+]'(
*)&,&$+ ")$")' @&&' (+!#4&,&(6 + '!& ")& 2$++ '. #8 ")& +$ (!"+6
")$" ")&,& $,& '# 5#*&,+ ")&,& ' 8#, ")& &!#4&,? #8 ")& $"&+
#, ++&++%&'"+ 8,#% %& "# %& $8"&, ")& %$: '. #8 ")&
,&+2&!" 4& 8 '$- *$,(+ #8 ")& #%% ++ #'&,+ $!" '. ' &9&!1" #'
#8 ")& +$ (!"+6 1'(&, #, @? 4 ,"1& #8 ")& +$ (!"+ #, ")& +$ (
$,(+6 #, 1'(&, #, @? 4 ,"1& #8 5#&,+6 1")#, " &+6 #, 3 ,&!" #'+
. 4&' #, !#'"$ '&(' ")& +$ (!"+ #, *$,(+6 8#, (&8,$? '. ")&
92&'!&+ #8 ,&2$, '.6 +12&, '"&'('.6 #, ,&'&* '. ")& +$ (#$(+6
3,$ '+6 $':+6 , (.&+6 -1 !&+6 $'(#")&, E #,:+6 *)&,&@? .,&$"
'!#'4&' &'!& $'(#++&+)$4& @&&' +1+"$ '&(8#, *$'" #8 +1!)
5#*&,+] '(*)&,&$+ " + &92&(&'" ")$" $ +1%%$,? #(& #8
2,#!&&('. +)#1-(@& .,$'"&(8#, ")& 51,2#+& #8 ,&!#4&, '. $'(
&'8#,! '. ")& 5$?%&'" #8 +1!) $"&+ #, ++&++%&'"+ 8#, &%&(?
Q ' *)&,&#8

*)&,&#8б %$?' " 2-&$+&' #1,' $>&+"?' ")$" " %$?' @&' &'$!"&(' $'('
@&' " &'$!"&(' @?' ")&' D '.;+ %#+" 9!&--&'" $>&+"?б @?' $'(' *")'
")&' (4 !&' $'(' #'+&'" #8' ")&' #,(+' 2 , "1$-' $'(' &'-2#,$-б $'('
#%%#'+б '' ") +' 2,&+&'" 5$,- $%&'" $++&%@-&(б $'(' @?' ")&' 1N
")#, "?' #8' ")&'> $%&б)$" '' $--' $+&+' *)&,&' '#' +1!)' &%&(?' +)$--'
)$4&' @&&'' . 4&'б $'(' *)&,&' $'?' +1!)' $"&' #,' ++&++%&'"б $"&+' #,'
++&++%&'"+б $-,&$(?' %$(&' #,')&,&$8"&,' "#' @&' %$(&б #,' $'?' 5$,"
")&,&#8б $'(' *)&")&,' %$(&' $" '&' %&' ,' $" +&4&,$-' %&+б +)$--'
)$4&' @&&'' #,' +)$--' @&' '' $,,&$,' $'(' 1'2$ (' 8#,' ")&' 2$!&' #8' *&'"?B'
#'&' 3$?+' $8"&,' $' #" !&' '' E , " ' . ' ,&C1 , ' . ' 5$?%&'" ")&,&#8' +)$--'
)$4&' @&&'' 2&,+#'$--?' +&,4&(' #'' #,' -&8" $" ")&' 5-$!&' #8' @#(&' #8'
")&' 5&,+#'' #,' A5&,+#'+б #,' '&' #8' ")&' 5&,+#'+б @?б *)#%' ")&' +$ ('
$"&' #,' ++&++%&'"б $"&+' #2' ++&++%&'"+б #1.)" "#' @&' 2$ (б #,' $"
")&' 5-$!&' #8' @#(&' #8' ")&' &'$'" #,' !!12 &,' #8' ")&' $'(+' #,'
H,#1'(+' '' ,&+2&!" #8' *) !)' ")&' +$ (' $"&' 1,' ++&++%&'"б $"&+'
#,A' ++&++%&'"+б +' #,' $,&' %$(&б " +)$--' $'(' %$?' @&' -$*81-' 8#,' $'?'
*#' #,' %#,&' #8' +' $>&+"?;+' R1+" !&+' #8' ")&' 5&$!&' $!" ' . ' 8#,' $'?'
#1'"?б (' . б #,' 3 4 + #'б '' 5&""?' &++ #'+' $++&%@-&(б X'#"
'"&,&+"&(' '' ")&' $""&,' '' C1&+" #'б[' $'(' *)#' $,&')&,&@?' ,&C1 ,&(б
12#'' #%2-$ '" %$(&' "#' ")&%' @?' ")&' 5&,+#'' #,' 5&,+#'+б #,' $'?' '&'
#8' ")&' 5&,+#'+б "#' *)#%' 8#,' ")&' %j' @&' . ' ")&' +$ (' $"&' #,' ++&++N
%&'" #,' $"&+' #,' ++&++%&'"+' #1.)" "#' @&' 2$ (б #,' @?' ")&' 5&,+#''
#,' 5&,+#'+б #,' $'?' '&' #8' ")&' 5&,+#'+б *)#' 8#,' ")&' %&' @&' ' . ' +)$--'
@&' (1-?' $22#'"&(' "#' %$:&' #,' !#--&!" +1!)' $"&' #,' ++&++%&'" #,'
$"&+' #,' ++&++%&'"+б "#' +1%%#'' ")&' 5&,+#'' #,' 5&,+#'+' 8,#%' *)#%'
$'?' $"&' #,' ++&++%&'"б 2б$"&+' ' , ' ++&++%&'"+б +)$--' @&' (1&б $'(' ")&'
E "'&++&+' #'' @#")' (&+б $'(' 12#'' ")&' 22&$,$V!&' #,' #'"&%2" #8'
")&' 5$,"?' #,' 5$," &+' $!!1+&(б #,' $'?' #8' ")& б "#' &9$% '&' +1!)' 5$,"?'
#,' 5$," &+' $'(' E "'&++' #,' E "'&++&+' $+' %$?' @&' ")&'' 2,&+&'"б 2#''
$")' X*) !)' $")' +1!)' R1+" !&+' $,&')&,&@?' $1")#, L&(' $'(' &%N
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$""&,+' $'(') ' . +' @,#1.)" @&8#,&'") &%б $'(' @?' E $,,$'" #,' E $,,$'"+'
1'(&,' ")&' $'(+' $'(' &$-+' #8' +1!)' R1+" !&+' "#' -&4?' ")&' %#1'" #8'
$--' $'(' &4&,?' +1!)' $"&' #,' ++&++%&'"б $"&+' #,' ++&++%&'"+б +#' ''
$,,&$,' $'(' 1'2$ (б @?' 3 +",&++' $'(' $-&' #8' ")&' H##(+' $'(')$""&-+' #8'
")&' 5&,+#'' #,' 5&,+#'+' +#' %$: ' . ' (&8$1-" '' 2$?%&'" #8' +1!)' $"&' #,'
++&++%&'"б $"&+' #,' ++&++%&'"+б *)&,&+#&4&,' ")&' +$%&' !$'' #,' %$?'
@&' 8#1'(б #,' #8' ")&' !!12 &,' #,' !!12 &,+' #8' $'?' $'(+' #,' H,#1'(+'
@&-#' . ' . ' "#' +1!)' 5&,+#'' #,' 5&,+#'+' '' ,&+2&!" #8' *) !)' +1!)' $"&'
#,' ++&++%&'"б $"&+' #,B' ++&++%&'"+б +' #,' $,&' %$(&б *) !)' %$?' @&'
8#1'(' #'' +1!)' $'(+' #,' H,#1'(+б "#.&")&,' *")' ")&' ,&$+#'$@-&' #+"+'
$'(')$,.&+' #8' +1!)' 5,#!&&(' . б ,&'(&,' ' . ' ")&' 4&,2-1+' $, + ' . ' @?'
+1!)' $-&' X 8' $'?[б $8"&,' (&(1!" ' . ' ")&' 1%' #,' 1%+' "#' @&' -&4 &(' @?'
+1!)' 3 +",&&+$'(' $-&б $'(' ")&')$'.&+' #8"$: ' . б :&&2 ' . б $22,$+ ' . б
$'(+&-- ' . ' ")&' +$ (' 3 +",&++б "#' ")&' *'&,' ")&,&#8' X#'' 3&%$'([
$'(' ")&' ,&+2&!" 4&' &'$'"+' #8' $--' ")&' $'(+' #'' *) !)' +1!)' 3 +",&++'
+)$--' @&' "$:&'' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' "#' 2$?' $'?' 1%' #8'
#'&?' 8#,' *) !)' +1!)' 3 +",&++' +)$--' @&' %$(&б $'(' "#' (&(1!" ")&' +$%&'
#1" #8') +б)&,&б #,' ")&,' &'"' $'(' &4&,?' &'$'" %$: ' . ' 1!)' 5$?%&'"
+)$--' @&' $!C1 ""&(б &9#'&,$"&(б $'(' (+!)$, . &(' 8#,' +#' %1!)' #'&?' $+'
+)$--' @&' @?') %' #,')&,' +#' 2$ (' 5,#4 (&(' $-*$?+б ")$" -#+1!)' &4?' @?'
3 +",&++' $'(' $-&' +)$--' @&' %$(&' , ,&+2&!" #8' $'?' +1!)' $"&' #,' ++&++N
%&'" *)&'' %#,&' ")$'' 9' &&$,+' +)$--')$4&' &-$2+&(' 8,#%' ")&' %&

B GD' .'
C/ HDDG #4'
. /' =DH FD/6'
.' = 23DE' /'
EEDEE O D#3E'
#' 2//D2/'
Z"D/D' #'
= D O DG6' "23"
ODD#' 27/D2G6

O 3 #4' 3"D'
=DH FD/6' 3 '
&' - D2/E'
./ O' +D/ G

*- &' +1!) $"& #, ++&++%&' 8 ,+' @&!$%& (1&6 1'-&++ $ 5,#% +& ' #8=23D OD
E, " '. "# 2$? ")& +$ ($"& #, ++&++%&' +)$--)$4& @&&' . 4&' @? (1&
")& 5&,+#' #, 5&,+#'+ - $@-& "# ")& 5$?%&' ")&,&#8 "# +#%& 5&,+#'
(1-? $1")#, L&("# ,&!& 4& ")& +$%& $' (*)&' +1!) 5,#% +&)$+ @&&'
. 4&' '# +1!) &4? @? 3 +",&++ #, $-& +)$-- "$:& 2-$!& >4)8&' %#,& ")$'
9 &$,+ +)$--)$4& &-$2+&(8,#% ")& %& ")$' +1!) 5,#% +& *$+
. 4&'] 5,#4 (&($-+#6 ")$' '# +1!) &4? @? 3 +",&++ $'($"& +)$-- '
$'? $+& &9!&&(")& %#1' #8 ")& &' (1&

'(@& ' 81,")&, &'$!"&( )$' ")& R1+" !&+ @? *)#% $'? #,% #8
+1!) E$,,$' #8 3 +",&++ +)$-- @& ++1&(%$? !$1+&6 +1!) E$,,$'
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#,% "# ")& +$%& 88&!" X")$' + "# +$?6[

#' ")& #'+"$@-& #8 ")& ' ")& #1'"?
A #8
MXM-7 ' $'(@? $!&,"$ ' $"& #, ++&++%&'"6
B ($"&(")& $'(%$(& 8#,
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")& 5$, +) #8 ' ")& #1'"? #8 *$+ (1-? ,$"&(
$'($++&++&(' ")& 1% #8 W * !
* * QH] '(*)&,&$+ '
$22&$,&") 1'"# 1+6 *# I %#,&[#8 + $>&+"?;+ R1+" !&+ #8 ")&
5&$!& 8#, ")& +$ (X #1'"?6 ('.6 3 4 + #'6 * " #P
12#' ")& #%2-$ ' #8 ' ' , #8 ")& 5&,+#' "# *)#% ")&
+$ ($"& #, ++&++%&' #1.) "# @& 2$ (6 X#, 8
* " P ")$' $ #" !& ' E, " '.6 ,&C1 , '. 5$?%&' #8 ")& +$ (
1% I +$ (+&4&,$- 1%+[6 *$+ 2&,+#'$--? +&,4&(#' ")& +$ (, (,
I -&8" $' ")& 5-$!& #8 @#(& #8 ")& +$ (, (, #8 ")& &'$'
#, !!12 &, #8 ")& $'(+ #, H,#1'(+6["# * "6 #' ")&
3$? #8 -$+"6 $'(")$' 3&8$1-')$+ @&&' %$(& '
2$?%&' ")&,&#8 8#, ")& 2$!& #8 *&'"?B#'& 3$?+ '&9' $8"&,
+1!) #" !& +# +&,4&(I -&8"[6 $'(")$' ")& +$%& 1% I +&4&,$-
1%+6 $!&,"$ ' 5$, #8 +1!) 1,$ #, 1%+6 * " P
+ X#, $,&[+" -- (1& $'(1'2$ (] '(*)&,&$+)$4 '. @&&' (1-?
2,#4&("# 1+6 12#' $")6 ")$' ")& +$ (, (,)$") @&&' (1-?
+1%%#'&("# $22&$, @&8#,& 1+6 ")& +$ (R1+" !&+6 "# +)#* $1+&
*)? ")& +$ ($"& #, ++&++%&' X $"&+ #, ++&++%&'"+[+)#1-(
'#" @& 2$ ($'( )& ")& +$ (, (,)$4 '. $22&$,&(@&8#,& 1+
X#, $'( )& ")& +$ (, (,)$4 '. '&.-&!"&("# $22&$, $!!#,(N
'.-? @&8#,& 1+6 * " P $!!#,('. "# +1!)
$'('#")$4 '. +)#*' "# 1+ $'? +188 ! &' $1+& *)? ")& +$ (
1% +# $+ $8#,&+$ ((1& $'(1'2$ (+)#1-('#" @& 2$ ( ])&+& $,&
")&,&8#,& "# ,&C1 ,& ?#1 8#,")*") "# %$:& 3 +",&++ #8 ")& H##(+
$'($""&-+ #8) % ")& +$ ((*)&,&#&4&, ")&? %$? @& 8#1'(6
#, #8 ")& !!12 &, #, !!12 &,+ #8 ")& $'(+ #, H,#1'(+ #, +#%&
5$, ")&,&#8 @&-#'. '. "# ")& , (, ,&+2&!" #8 *) !) ")& +$ (
$"& #, ++&++%&' X $"&+ #, ++&++%&'"+[+ I $,&[%$(&6 *) !)
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1,$ #8 $'($-+# ")& 81,")&, 1%
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' ;' ' L' B ' ' (2C V

Ů "#.&")&,' * ")' ")&' ,&$+#'$@-&')$,.&+' #8'"$: '.'$'(' :&&2 '.'")&' +$ ('
Å 3 +",&++6' +)$--' '#"@&' 2$ (6' ")$"' ")&'' ?#1' (#' +&--' ")&' $ (' H##(+' $'('
Ů)$""&-+' +#' @?' ?#1' (+",$ '&(6' $'(' #1"' #8'")&' #'&?' $, + '.'@?' +1!)'
Ů $-&' ")$"' ?#1' (&"$ '' ")&' +$ (' 1%' #8' ' 6 ' $'(' $-+#
Ů ?#1,' ,&$+#($?&')$,.&+' #8' "$: '.6' :&&2 '.6' $22,$ + '.66' $'(' +&-- '.'
Ů ")&' +$ (' 3 +",&++6' ,&'(&, '.' "#') %' ")&' ' ")&' 4&,2-1+6' #''
Ů 3&%$'(' H 4&'' 1'(&,' #V,' $'(+' $'(' &$-+' ") +']
Ů 3$?' #8' '&' ")#1+$'(' & .)"')1'(,&('$'('") ,"?

22&$-' ' '(' @&' "' 81,")&,' &'$!"&(')$"' 8'$'?' 5&,+#'' #8' 5&,+#'+' +)$--
") ':') %+&-86')&,+&-86' #,' ")&%+&-4&+' $.., &4&(' @?' $'?' ") '.' (#'&' ''
21,+1$'!&' #8' ") +' !"6' ")&'' $'(' '' &4&,?' +1!)' $+&')&6' +)&6' #,' ")&?'
%$?' $22&$-' "#' ")&' '&9"' #1,"' #8' H&'&%-' T1$,"&,' &++ #'+' #8' ")&'
5&$!&' *) !)' +)$--' @&')#-(&'' 2#"' -&++' ")$'' &'' 5$?+' $8"&,' ")&' $1+&'
#8' +1!)' #%2-$ '' 8#,' ")&' #1''?6' ('.6' 3 4 + #'6' #,' 5-$!&' *)&,& ''
")&' $1+&' #8' #%2-$ '' +)$--')$4&' $, +&''[' 2,#4 (&(' ")$"' +1!)' 5&,+# ?'
+)$--' . 4&' "#' ")&' #%2-$ '$''' $' #" !&' '' E, " '.' #8' +1!)' 22&$-6'
$'(' #8' ")&' $1+&' $'(' $""&,' ")&,&#86' * ") '' .)"' 3$?+' $8"&,' +1!)'
$1+&' #8' #%2-$ ''6' $'(' 9' !-&$,' 3$?+' $"' ")&' -&$+"' @&8#,&' +1!)'
&++ #'+6' $'(' +)$--' $-+#' &'"&,' '"#' $' &!#.' L$'!&' * ") '' +1!)' 9'
3$?+6' * ")' +18- ! &'' 1,&"?6' @&8#,&' $' R1+" !&' #8' ")&' 5&$!&' 8#,' ")&'
+$%&' #1''?6' ('.6' 3 4 + #'6' #,' 5-$!&6' !#' ("#'&(' "#' $22&$,' $"'
")&' +$ (' &++ #'+6' $'(' "#' ",?' Y1!)' 22&$-6' $'(' "#'$@ (&' ")&' R1(.%&''
#8' ")&' #1," ")&,&12#'6' $'(' "#' 2$?' +1!)' #+"+' $+' +@7-' @&' $*$,(&(' R@?
")&' #1," ' $'(' ")&' #1," $"' +1!)' &++ #'+' +)$--')&$,' $'(' (&"&,% '&'
")&' $""&,' #8' +1!)' 22&$-6' $'(' +)$--' %$:&' +1C-' ,(&,' ")&,& '6' * ")'
#,' * ")#1"' #+"+' "#' & ")&,' 5$,"?6' $+' "#' ")&' #1," +)$--' +&&%' %&&"

E$,,$''' '#' ' 1(' OD' 3' .I/3"D/' D#23 3DG!')$"' # ' +1!)' E$,,$''' #8' 3 +",&++
8#,A7*$',#87 #,' (>1(!$" #'' %$(&' #'' 22&$-' ")&,&8,#%' +)$--' @&' C1$+)&(' 8#,' *$'"
5#,,$ #8' #,%

$"&(' 5&,B' 5,#4 (&(' $- *$?+6' $'(' @&' "' 81,")&,' &'$!"&(6')$"' $"' ")&')&$, '.
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< ' '(' @&' "' 81,")&,' &'$!"&(')$"' "' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' $22# '"6' (1, '.' 5-&$+1,&6' +?!-8' &!,&"$,?' $'(' ,&$+1,&,6' $'(' +1!)' #")&,' +1@#,('$"&' 88 !&,' #,' 88 !&,+6' $+' ")&?' '' ")&,' 3 +!,&" #'' +)$--' ") ' :' '&!&++$,?' 8#,' ")&' 9&!1" #'' #8' ")& +&4&,$-' 31" &+' $'(' ,1+"+')&,&@?' ,&2#+&(' '' ")&%N $, (' ")&' +$ (' #%% ++ #'&,+' +)$--6' #1"' #8' ")&' +&4&,$-' 1'(+')&,&@?' 4&+"&(' '' $'(' %$(&' 2$?$@-&' "#' ")&%6' 2$?' +1!)' $-$, &+' $+' +)$--6' 21,+1$'"' "#' ")&' 5,#4 + #'')&,& 'B@&8#,&' !#'"$ '&(6' @&' $22# '"&(' "#' @&' 2$ (' "#' ")&' +$ ('),&&' #%% ++ #'&,+6' $'(' $-+#' +1!)' #")&,' $-$, &+' "#' ")&' +$ (' &!,&"$,?6' ,&$+1,&,6' $'(' #")&,' +1@#,('$"&' 88 !&,' #,' 88 !&,+' $+' ")&' +$ (' #%% ++ #'&,+6' @?' $'(' * ")' ")&' 22,#@$" #'' $'(' #'+&'"' #8' ")&' #,(' &1"&'$'"' #,' #")&,') &8' H#4&,'#,' #,' H#4&,'#,+6' "&+" 8 &(' '' E, " '.' 1'(&,') +' #,' ")&,' $'(' #,' $'(+6' +)$--' 8,#%' %&' "#' %&' ") ' :' 8 "' $'(' $--#* ' $'(' ")&' +$ (' #%% ++ #'&,+' +)$--' $-+#' #1"' #8' ")&' +$ (' 1'(+' (&8,$?' $--' +1!)' '! (&'"$-')$,.&+' $'(' 92&'!&+' $+' +)$--' @&!#%&' '&!&++$,?' '' ")&' 9&!1" #'' #8' ")&' +&4&,$-' 5#*&,+' $'(' ,1+"+' @?' ") +' !"6' #,' @?' $'?' !"')&,&$8"&,' "#' @&' 2$++&(66' ,&2#+&(' '' ")&%

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+ $+" !$-' #%% ++ #'&,+' 8#,' F' $+' ")&' +$ (' #%'$ ++8#'&,+' +)$--'
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%&'!&%&'" #8' ") +' !" $-' 5$?%&'"+' #8' ,+" ,1 "+' '' ' +)$--' . /E3' A/ I 3E'
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%&6' $+' ")&?' +)$--' ")' ':' '&!&++$,?6' $%&'(' #,' !$1+&' "#' @&' $%&'(&(6' 0 2]D' 2' 2^
$' <$-1$" #'6' '' *) !)' <$-1$" #'' --#*$'!&' +)$--' @&' %$(&' 8#,' ")&' 7123 #' '277
3&(1!" #'')&,& 'B$8"&,' %&'" #'&(6' #8' $--' $'(' &4&,?' ")&' &4&'1&+6' F #4E' D '
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8,#%' $'(' $8"&,' ")&' %&+' *)&'' ")&' +$%&' +)$--' +&4&,$--?' @&!#%&' 2#HD
4# (' '&9" $8"&,' ")&' 2$++ '.' #8' ") +' !"6' $'(' 8#,' &4&,' ")&,&$8"&,6'
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< ' '(' @&' " &'$!"&(')$" ")&' +$ (' ?&$,-?' $9' +)$-' &' 2$ ( )$-8B?&$,-?' " &C1$-' # &" &+' "#' ")&' +$ (' !!-&+ $+" !$-' #%% ++ #'&,+' #'' &$!)' ,+" 3$?' 28'& '$' (' ,+" 3$?' #8'& ' ")&' 8 ,+" 5$?"'&'" #'' $!!#1'" #8' +1!)' $''1$-' $9' "#' @&' %$(&' 8,#,"' $' (' #1" #8' &$!)' 3 .' "?6' &'&8 !&6' 88 !&6' #,' 5,#%#" #'' 2 , "1$-' #'' ")&' ,+" 3$?' #8' & ' 8' ,+" 3$?' '& ' $+' %$?')$22&'6' 1&9" $8"&,' ")&' ,+" 3$?' #8' ' #,' ")&' ,+" 3$?' #8' & *" ' $+' %$?')$22&'6' '&9" $8"&,' ")&' #'+&!,$" #'6' '+"$--$" #'6' '(1!" #'6' #--$" #'6' '4&+" '.6' 2-$! '.6' -&!" #'6' #,' 22# '"%&'" #8'")&' 5&,+#'+' +1!!&&('.' ")&,&"#'] 5,#4 (&(' $-*$?+6' ")$" +1!)' 5&,+#'' +)$--' #'-? @&' !)$,.&(' #,' !)$,.&N $@-&' '' +1!)' 8 ,+" 5$?%&'" * ")' $' 5,#2#," #'' #8' +`!)' $96' $!!#,('.' "#' ")&' &,%' (1, '.' *) !)')&' +)$--')$4&' &'>#?&(' #8' @&&'' &'" "-&(' " ' ")&' 5,#8 "+' #8' +1!)' 3 .' "?6' &'&8 !&6' 88 !&6' #,' 5,#%#" #'' 2 , "1$-' $'(' 2,#4 (&(' 81,")&,6' ")$" 8' $'?' +1!)' 3 .' "?6' &'&8 !&6' 88 !&6' #,' 5,#%#" #'' 2 , "1$-' +)$--' ,&%$ '' <# (' 8#,' $'?' %&' $8"&,' +1!)' 3$?+')&,& 'B@&8#,&' $22# '"&(' 8#,' ")&' 5$?A%&'" #8' ")&' +$ (' $''1$-' $96' ")&' 5&,+#'' +1!!&&('.' ")&,&"#' +)$--' @&' !)$,.&(' $'(' !)$,.&$@-&' * ")' $--' ,,&$,+' ")&,&#8' $!!,1 '.' (1&' 8,#%' $'(' $8"&,' ")&' -$+" 4# ($'!&' ")&,&#8

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H # 06' A I#G' D&^ DOC3DG' ./ O' 2&23 #

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C / 3I2?' +D/ ' E #E' 3 ' O2]D' 2' =D3 I /#' .' " D' 2##I2?' 27ID' .'3"D /' F #4E!' H N

< ' '(' @&' " 81,")&,' &'$!"&(6')$" '' #,(&,' "#' &'$@-&' ")&' +$ (' #%% ++ #'&,+' ")&' @&""&,' "#' !#%21"&' $'(' %2#+&' ")&' +$ (' $96' $"&6' #,' ++&++%&'" $!!#,('.' "#' ")&' 5,#4 + #'+' #8' ") +' !"6' &4&,? ,!)@ +)#26' +)#26' ,!) (&$!#'6' 3&$'6' 5,&@&'($,?6' $+"&,6' E $,(&'6' 5$,+#'6' 2 , "1$-' < !$,6' 5&,2&"1$-' 1,$"&6' $'(' &4&,?' 2 , "1$-' #,N 2#,$" #'' ..,&.$"&' 1'(&,' "+' #,2#,$"&' &$-6' $'(' &4&,?' &%@&,' #8' +1!)' $' #,2#,$" #'' '(4 (1$--?6' $'(' $--' $'(' &4&,?#")&,' 2 , "1$-' 5&,N +#'+6' '' @?' *)$"&4&,' $%&' #,' $%&+' ")&?6' %$?' @&' ,&+2&!" 4&-? !$--&(6' :'#*'6' #,' (&+!, @&(6' +)$--6' #'' #,' @&8#,&' ")&' ,+" 3$?' #8

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&,&("$%&'"+6 $'('5,#8 "+")&,&"# ,&+2&!" 4&-? @&-#' . '.6 @?")&% $'('
&$!) #8")&% $" ")& %& #8 %$: '.' +1!) &"1,'+ ,&+2&!" 4&-?)&-('
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$'(' $-+# ")& %#1'" #8 ")& 1%+ X 8 $'?[&92&'(&(' ' @1 -('.' #,
%2,#4 '. +1!) && #1+&6 H-&@& #1+&6 #, 88 !&+6 #, 5-$!& #8
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)&,& "))& +)$-- @& !)$,.&$@-& "#) + #, ")& , 5,&(&!&++#,+ ,&+2&!N
" 4&-?6 #,) + #, ")& , 9&!1"#,+6 (% ' +",$"#,+6 #, ++ .'+ ' (+" 'N
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% ++ #'&,+ +)$-- $-+#)$4& 5#*&,$'(' 1")#, "?6 *)&' $'(' $+ #8"&' $+ D/E O26 EE ID
")&? +)$-- +# ") ':' '&!&++$,?6 "# (,&!" '"# $'? 3 #!&+& ' ' 2 (O O E^
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+)#2 ")&,&#86 $'('+1!) #")&, 5&,+#'#, 5&,+#'+6 @& '. &%@&,+ #\ I / DE . /
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+#'&,+ +)$-- ") ':' 8 "6 !#%%$'('. $'(' $1")#, L '. ")& 5&,+#'+ ' .D#2O7 #4
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5,#4 + #'+ #8") + !"6 $'(' $1")#, L '. $'(' &%2#*&, '. +#%& *# #,
%#,& 5&,+#'+ "# @& '$%&(' ' +1!) #%% ++ #'6 +&2$,$"&-?6 #, ' ")&
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' $'(' &9&!1"& ")& +&4&,$- 5#*&,+ $'(' ,1+"+ ,&2#+&(' ' %& @? 4 ,"1& +1!) (O '
Ú #8 $ #%% ++ #' ++1&(' 21,+1$'" "# ")& 5,#4 + #'+ #8 $' !" 2$++&(' O EE #
Ú ' ")& #1,") &$, #8 ")& & . ' #8 + $>&+"? D '. ' / * ")&
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!!#1'" $'(+" %$"& #8 ")& +$ (+&4&,$- $""&,+ $'( ) '.+ ' ")&
+$ (#%% ++ #' +# (,&!"&("# @& 'C1 ,&(#8 @? ")&% $+ $8#,&+$ (6 $'(
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$'? +1!) #%% ++ #'6 #, $'? 5$," ")&,&#86 1'-&++ ")& <-1" #' #8
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%&'"6 ")& +$ (#%% ++ #'&,+ +)$-- 8,#% %& "# %& (&(1!" $'(
$--#*$-- &'"+6 ?'#($-+6 5,#9 &+6 $'(#")&,)$,.6&+6 '!-1('. $-$, &+
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$'? &'&8 !& ")& '!1%@&'" *)&,&#8 +)$--)& ,&+ (&'" ' $'? +1!)
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X")$"' +' "#' +$?6[' ")&' $''1$-' 1%' #,' --#*$'!&' #8' &'' 5#1'(+' '' ")&'
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+1!)' 1 -(' .' #,' %2,#4&%&'"' $+' $8#,&+$ (6' $'(' *) !)' +)$--' '#"' @&' @?'
$*' ,&!#4&,$@-&' @?' +1!)' 5&,+#'6') +' 9&!1"#,+6' (% ' +",$"#,+6' #,'
++ .'+6' 8,#%' #,' $.$ '+"') +' 1!!&++#,' ' $'(' ")&' $''1$-' 1%' #,'
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1%' #,' 1%+' +#' &92&'(&(' #,' -$ (' #1"6' #,' 2$ (' #,' +&!1,&(' "#' @&' 2$ (6'
#,' *)&,&* ")'$'?' +1!)' 5&,+#'' +)$--' @&' !)$,.&$@-&' "#') +' 5,&(&!&++#,+6'
#,') +' 9&!1"#,+6' (% ' +",$"#,+6' #,' ++ .'+6' $+' $8#,&+$ (6' #'' $!!#1'"'
#8' #'&?' +#' ")&,&"#8#,&-$ (' #1"'#,' &92&'(&(' $+' $8#,&+$ (6' $+' ")&' $+&'
%$?' @&6' $'(' *) !)' +)$--' @&' @?' $*' ,&!#4&,$@-&' @?' +1!)' 5&,+#'6'
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' #,' #8' ")&' ,!)@ +)#2' #,' +)#2' #8' ")&' 5,#4 ' !&' #,' 3 #!&+&'
,&+2&!" 4&-?6' $+' ")&' $+&' %$?' @&6' '' +1!)' $+&+' . 4&'' #,' (,&!"&(' "#' @&'
. 4&'6' 1'(&,' #,' @?' 4 ,"1&' #8' $'?' "$"1"&' '#*' #,')&,&"#8#,&' '' 8#,!&' ''
' '' #,(&,' "#' &'$@-&' $'?' ,!)@ +)#26' +)#26' #,' #")&,' #8' ")&'
5&,+#'+' $8#,&+$ (' "#' ,&!#4&,' $.$ '+"') +' 1!!&++#,' ")&' 1%+' $@#4&'
%&'" #'&(6' #,' $'?' #8' ")&%6' #,' $'?' 5$,"' ")&,&#8

' '(' @&' "' 81,")&,' &'$!"&(')$"' 8' ")&' +$ (' $96' $"&6' #,' A /'D#. /H #4'
++&++%&'"6' #,' $'?' 5$,"' ")&,&#86' 2$?$@-&' @?' $'?' #(?' #,' 5&,+#'6' +26 0 D#3' .' 9
+)$--' @&' '' $,,&$,' $'(' 1'2$ (' %#,&' ")$'' $' ,&$+#'$@-&' %&' $8"&,' ")&'
+$%&' +)$--')$4&' @&&'' (&%$'(&(' @?' #,' #'' ")&' 5$,"' #8' ")&' #%% +N
+ #'&,+' 1'(&,' ") +' !"6' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' +1!)' #%N
% ++ #'&,+' '' &4&,?' +1!)' $+&' "#' $22-?' "#' ")&' #1,"' #8')$'!&,?' #,'
9!)&C1&,' '' ' @?' 5&" "#'' '' $' +1%%$,?' E$?6' 8#,' &- &8' ''
")$"' &)$-8' $'(' +1!)' #1,"' +)$--' $'(' %$?6' #'' ")&' &$, ' .' #8' +1!)'
5&" " #'6' $'(' 12#'' ")&' 5,#(1!" #'' #8' $' &," 8 !$"&' 1'(&,' ")&' #,2#,$"&'
&$-' #8' +1!)' #%% ++ #'&,+6' #8' +1!)' $9' @&' '.' '' $,,&$,'$'(' 1'2$ (' $+'
$8#,&+$ (6' '' $+1%%$,?' E$?6' * ")' #,' * ")#1"' &&&,&'!&' "#' $'?' $+"&,'
#,' #")&,' 88 !&,' #8' +$ (' #1,"6' #,(&,' 5,#!&++' #8' &C1&+",$" #'' X$8"&,'
)&$, ' .' +1!)' $""&,+6' 8' $'?6' $+' %$?' @&' $--&.&(' '' $'+*&,' "#' +1!)'
22- !$" #'6' @?' 88 ($4 " #,' #")&,* +&6' 12#'' $' 3$?' "#' @&' 8 9&(' 8#,'
")$"' 51,2#+&6' [' "#' ++1&' #1"' #8' +$ (' #1,"6' (,&!"&(' "#' &C1&+",$"#,+' "#'
@&' '$%&(' @?' #,' #'' @&)$-8' #8' +1!)' #%% ++ #'&,+6' $1")#, L '.' $'('
,&C1 , '.' +1!)' &C1&+",$"#,+' 8#,") * ")' "#' &'"&,' '"#' ")&' 5#++&++ #'' #8
$'(

U ; ' $ B ' ' (2C

$'(' "$:&' $'(' ,&!& 4&' ")&' & "+6' ++1&+6' $'(' 5,#8 "+' #8' $--' $'(' &4&,?'
")&' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+' #8' #,' @&-#' . ' . ' "#' $'?'
+1!)' #(?' #,' 5&,+#'' '') +' #,' ")& ,' !!-&+ $+" !$-' 2! "?' #,'
)$,$!"&,6' $'(' $--' $'(' &4&,?' ")&' ")&+6' #(1+&+6' #%2#+ " #'+'
8#,' ")&+>' $-$, &+6' " 2&'(+6' &&+6' $'(' $--' #")&,' !!-&+ $+" !$-'
%#-1%&'"+' $'(' 5,#8 "+' *)$"+#&4&,' #8' #,' @&-#' . ' . ' "#' ")&' +$%&'
,&+2&!" 4&-?6' #,' +1!)' 5$,"' #,' 5$,"+' ")&,&#8' $+' "#' ")&' +$ (' #1," +)$--'
+&&%' 81--?' +188 ! &'"' 8#,' ")&' 51,2#+&6' $'(' "#' 2$?' #4&,' ")&' +$%&' "#'
+1!)' #%% ++ #'&,+6' 1'" -' ")&?' +)$--')$4&' @&&'' 81--?' 2$ (' $'(' +$"+A8'
8 &(' ")&' +$ (' ?&$,-?' $9' $'(' &4&,?' 5$," ")&,&#8' *) !)' +)$--' @&' ")&'6'
#,' *) !)' +)$--' $"' $'?' %&' 2&'(' ' . ' +1!)' &C1&+",$" #'6' ,&%$ '' #,'
@&!#%&' (1&' $'(' 2$?$@-&6' "#.&")&,' * ")' -$*81-' '"&,&+" 8#,' ")&' +$%&'
8,#%' ")&' %&' *)&'' &4&,?' +1C)' 1%' #,' 1%+' #1.)" ,&+2&!" 4&-?'
"#')$4&' @&&'' 2$ (6' $'(' $--' #+"+' $'(')$,.&+' $'(' 92&'!&+' *)$"N
+#&4&,' $""&'(' . ' +1!)' 5&" " #'' $'(' &C1&+",$" #'' $+' $8#,&+$ (' $'('
" +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #1," "#' 2,#!&&(' $.$ '+" $--'
5&,+#'+' (+#@&? ' . ' #,' #22#+ ' . ' +1!)' 5,#!&++6' #,' , $'?' $''&,'
) '(&, ' . ' #,' 2,&4&'" ' . ' ")&' (1&' 9&!1" #'' ")&,&#86' $'(' "#' $!" '' $--'
$""&,+' !#''&!"&(' * ")' $'(' !#'+&C1&'" 12#'' +1!)' &C1&+",$" #'' ''
")&' +$%&' $''&,' $+' '' #")&,' $+&+' '' *) !)' &C1&+",$" #'+' $,&' #,'
+)$--' @&' ++1&(' #1" #8' +$ (' #1," 21,+1$'" "j' ")&' ,(&,+' #8' +$ ('
#1,"

+/ / 36' .' D\ IDE3/2^ 3 #E' I#GD/' 3" m' H3

' 5,#4 (&(' $-*$?+6' $'(' @&' " 81,")&,' &'$!"&(')$" $'?'
&C1&+"8$" #'' ++1&(' 21,+1$'" "#' ")&' 5,#4 + #'+' #8' ") +' !" +)$--' @&'
2,&8&,,&(6' $'(' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !" +)$--' @&' 2$ ('
$'(' +$" +8 &(' ")&' 1%' $'(' 1%+' "#' @&' ,&!#4&,&(' ")&,&@?6' $'(' &4&,?'
5$," ")&,&#86' " 2,&8&,&'!&' "#' $'?' #")&,' 5&,+#'' #,' 5&,+#'+' *)$"N
+#&4&,6' '#"* ")+"$'(' . ' $'?' &C1&+",$" #'6' R1(.%&'"6' 9&!1" #'6'
#,' #")&,' 5,#!&++' *)$"+#&4&,' ++1&(' #,' @&.1'' 8#,' +1!)' #")&,' 5&,+#''
#,' 5&,+#'+' $'?' ") ' . ')&,& '' #,' '' $'?' #")&,' $*' #,' "$"1"&' !#'N
"$ '&('"#' ")&' !#'",$,?')&,&#8' '#"* ")+"$'(' .

á .' #H I O OD#3' G D' OD. /D' 27D' * 26!' 2&' 3 ' OD' 2C ' ' C /3 #DG

< ' 5,#4 (&(' $-*$?+6' $'(' @&' " 81,")&,' &'$!"&(')$" 8' $'?'
,!)@ +)#26' +)#26' #,' #")&,' 5&,+#'' !)$,.&(' #,' !)$,.&$@-&' * ")' ")&'
5$?%&'" #8' +$ (' ?&$,-?' $9' +)$--')$22&'' "#' (&6' #,')&' -$*81--?'
&4 !"&(6' ",$'+-$"&(6' 2,#%#"&(6' ,&%#4&(' ' 21" 8,#%') +' 3 . ' "?6'
&'&8 !&6' 88 !&6' #,' 5,#%#" #'' 2 , "1$-6' @&8#,&' $'?' #'&' #8' ")&' H$-&'
3$?+')&,&@?' $22#'"&(' 8#,' ")&' 5$?%&'" #8' ")&' +$ (' $96' ")&'' +1!)'
,!)@ +)#26' +)#26' #,' 5&,+#'6' #,') +' 9&!1"#,+' #,' (% ' +",$"#,+6'
$+' ")&' $+&' %$?' @&A' +)$--' #'-?' @&' !)$,.&(' $'(' !)$,.&$@-&' * ")' $'
5,#2#," #'' #8' +1!)' $96' $!!#,(' . ' "#' ")&' %&')&' %$?')$4&' @&&''
&'" "-&(' "#' #,' &'>#?&(' ")&' 5,#8 "+' #8' +1!)' 3 . ' "?6' &'&8 !&6' 5&,2&N
"1$-' 1,$!?6' #,' 88 !&6' #,' 5,#%#" #'' 2 , "1$-' $+' $8#,&+$ ('>' $'(' ")&'
1!!&++#,' "#' +1!)' 3 . ' "?6' &'&8 !&6' 88 !&6' #,' 5,#%#" #'' 2 , "1$-'
+)$--' @&!#%&' -$@-&' "#' ")&' &+ (1&' #8' +1!)' $9' $!!,1 ' . ' (1&' " +1!)'

,[.' #H I O OD#3' /DHD FD' # ' +/ . 3E' .' " E' +/D.D/ O D#3!' 3"D' +26 O D#3' .' 2&' 3 ' OD' GD726DG' /' H"2/4DG' #' " E' IHHDEE /

H$-&' 3$?'] '(' 2,#4 (&(' 81,")&,6' ")$" '' $'?' $+&' '' *) !)' " +)$--'
@&' %$(&' "#' $22&$,' "#' ")&' $" +8$!" #'' #8' ")&' +$ (' #%% ++ #'&,+' ")$"
$'?' 2 , "1$-' 5&,+#'' !)$,.&$@-&' * ")' ")&' +$ (' $9' +)$--' '#")$4&'
,&!& 4&(' ")&' 5,#8 "+' #8' ")&' 3 . ' "?6' &'&8 !&6' 5&,2&"1$-' 1,$!?' #,'
88 !&6' #,' 5,#%#" #'' 2 , "1$-6' '' ,&+2&!" *)&,&#8')&' %$?' @&' +#'
!)$,.&$@-&6' ")&' $'(' '' +1!)' $+&' " +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%N
% ++ #'&,+' "#' &9"&'(' ")&' %&' 8#,' ")&' 5$?%&'" #8' +1!)' $9' 1'" -
EIH"

+1!)' 5,.8 "+' +)$--' @&' ,&!& 4&(6' #,' '' !$+&' +1!)' 2 , "1$-' 5&,+#''
+)$--' (&6' #,' @&' ,&%#4&(6' #,' 2,#%#"&(' 8,#%') +' 3 . ' "?6' &'&8 !&6
5&,2&"1$-' 1,$!?6' #,' 88 !&6' #,' 5,#%#" #'' 2 , "1$-' $+' $8#,&+$ (6'
* ")#1'' @& ' .' &'" "-&(' "#' ,&!& 4&' $'?' #8' +1!)' 5,#8 "+6' ")&'' $'(' ''
+1!)' $+&' "#' !)$,.&' $'(' ,&!#4&,' ")&' +$%&' #8' $'(' 8,#%') +' 1!N
!&++#,' ")&,& '' *)&'&4&,' +1!)' 1!!&++#,' +)$--')$4&W',&!& 4&(' ")&'
+$ (' 5,#8 "+' $'?' ") ' .')&,& 'B@&8#,&' !#'"$ '&(' "#' ")&' !#'",$,?'
'#"* ")+"$'(' .

<' '(' @&' '' 81,")&,' &'$!"&(')$'' ")&' 5,#2#," #'' #8' +$ (' //D2/E' .
$''1$-' $9' (1&' #'' ")&' 3&$")' #8' $'?' ,!)@ +)#26' +)#26' #,' #")&,' 2&'GID' #
5&,+#'' $+' $8#,&+$ (' +)$--' @&' (&&%&(' $'(' "$:&'' "#' @&' $'(' +)$--' ,$'.' %D23",, „E_I H
$+' $' R1(.%&'' 3&@'' #8' +1!)' (&!&$+&(' ,!)@ +)#26' +)#26' #,' 5,+#'' /2#]' 2E' $
$+' $8#,&+$ (6' $'(' @&' 2$ (' $+' +1!)6' $+' 8' $' R1(.%&'')$(' @&&'' (1-?' , IG4O D#3'
$!:'#*-&(.&(' @?' #,' &'"&,&(' $.$ '+'') %' (1, '.') +' 8&" %&' @?' ")&'
+$ (' #%% ++ #'&,+' 8#,' ")&' %#1'' #8' +$ (' $9' *) !)' +)$--' @&' +#
(1&' $+' $8#,&+$ (6' $'(' %%&(' $"&-?' $8"&,' $--' #")&,' " ,& ' R1(.%&''"+6
,#*'' #'(+6' $'(' &!#. ' L$'!&+' &'"&,&(' 12' $.$ '+"6' $!:'#*-&(.&(6'
#,' &9&!1"&(' @?') %' (1, '.') +' 8&" %&

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' ")&' +$ (' #%% ++ #'&,+') O #DD' .'
1'(&,' ") +' !'' +)$--' @&' (&&%&(' $'(' "$:&'' "#' @&6' '' &4&,?' !!-&+ $+B' (O O E'
" !$-' #1,'' '' ")&' V' "&(' D '.(#%6' R1(.%&'' ,&("#,+' #8' $'?' ,!)B
@ +)#26' +)#26' #,' #")&,' +1!)' 5&,+#'' $+' $8#,&+$ (' !)$,.&$@-&' * ")' GO # E3/2'
$'?' ,,&$,+' #8' +$ (' $''1$-' $9' $'(' '' !$+&' ")&' 9&!1"#,+6' #,' '&9'' 3 #'
#8' D '6' #,' &+ (1$,?' &.$"&&+' #8' +1!)' ,!)@ +)#26' +)#26' #,' #")&,'
5&,+#'' $+' $8#,&+$ (' +)$--' ,&81+&' #,' '&.-&!'' "#' "$:&' #1'' 5,#@$"&' #,'
&""&,+' #8' (% ' +",$" #'' "#') %6' ")&' +$ (' #%% ++ #'&,+' +)$--' @&'
&'" "-&(' "#')$4&' (% ' +",$" #'' #8') +' H##(+' $'(')$""&-+6' .)"+'
$'(' ,&("+6' .,$'"&('#,' !#%% ""&(' 1'"#' ")&,' #% '&&' #,' #% '&&+'
'' +1!)' $''&,' $'(' #,%6' @1'' +1@>&!'' "#' ")&' +$%&' &.1-$" #'+'
$+' 8$,' $+' %$?' @&6' $+' $'(' 1'(&,' *) !)' (% ' +",$" #'+' $,&' 1+1$--?'
.,$'"&(' "#' ,&("#,+' #8' #")&,' (&!&$+&(' 5&,+#'+6' '#"* ")+"$'('.' ")$''
'#' 88 ($4'' #,' #")&,' 4 (&'!&' +)$--' @&' %$(&' #,' . 4&'' '' #,' "#' +1!)'
!!-&+ $+" !$-' #1,'' #8' $'?' 3&@'' @& '.' $!"1$--?' (1&' "#' +1!)' #%N
% ++ #'&,+] 5,#4 (&(' $-*$?+6' ")$'' $' &," 8 !$"&' 1'(&,' ")&' #,2#B' U
,$" #'' &$-' #8' ")&' +$ (' #%% ++ #'&,+' +)$--' @&' 2,#(1!&(' "#' +1!)'
!!-&+ $+" !$-' #1,"6' $--&. '.' ")$'' $' 3&@'' #'' $!!#1''' #8' ,,&$,+'
#8' +$ (' $''1$-' $9' +' (1&' "#' +1!)' #%% ++ #'&,+6' $'(' ")$'' ")&?'
,&C1 ,&' +1!)' (% ' +",$" #'' "#' @&' .,$'"&(' "#' ")&' 5&,+#'' "#' @&' ")&,& ''
'$%&(

< ' '(' @&' '' 81,")&,' &'$!"&(6')$'' ")&' +&4&,$-' ,!)@ +)#2+' /H"O E" CE
$'(' +)#2+' #8' '+)$--6' 8,#%' $'(' $8"&,' ")&' 2$++ '.' #8' ") +' !"6' E" CE'
#'' ")&' ,+'' 3$?' #8' 9 *" '$'(' ,+'' 3$?' #8' ' '' &4&,?' &$,6' 7
#,' $'' 8$,")&+'' * ") '' #1,"&&'' 3$?+' $8"&,6' %$:&' &"1,'+' "#' ")&' +$ ('
#%% ++ #'&,+' #8' $--6')#*' %$'?6' $'(' *)$'' ,!)(&$!#'+6' 3&$'+6' 5,#N
4#+"+6' $+"&,+6' E$,(&'+6' 5,&@&'($,&+6' &!"#,+6' 5$,+#'+6' < !$,+6
5&,2&"1$-' 1,$"&+6' '!1%@&'"+6' #,' #")&,' 2 , "1$-' 5&,+#'+6' @?' *)$"N
&4&,' $%&' !$--&(6' :'#*'6' #,' (&+!, @&(6')$4&' @&&'' '+"$--&(6' $(% ""&(6'
'+" "1"&(6' !#--$"&(6' #,' '(1!"&(' X$'(' #8' $'(' #'' *)#+&' H 8"6' H,$'"6' #,'
5,&+&'"$" #'' +1!)' '+"$--$" #'6' (% ++ #'6' '+" "1" #'6' (1!" #'')$+
"$:&'' 2-$!&6[' '"#' 3 .' " &+6' &'&8 !&+6' 1,$! &+6')$2&-, &+6' 88 !&+6
Q' ' #,

#,' 5,#%#" #'+' 2 , "1$-6' @?' *)$"&4&,' $%&' !$--&(6' : '#* '6' #,' (&7'
+!, @&(6' $+' $8#,&+$ (6' $'(' @?' *)$"' $%&+' $'(' 1, '$%&+' ")&?' *&,&'
+#' '+"$--&(6' $(% ""&(6' '+" "1"&(6' !#--$"&(6' 2,' '(1!"&(6' $'(' &$!)'
#8' ")&%' *&,&' + ' .-?' $'(' +&2$,$"&-?' !$--&(' $'(' : '#* '' @?6' "#.&")&,'
* ")' ")&' [$?' $'(' &$,' #8' ")&' '+"$--$" #'6' (% ++ #'6' '+" "1" #'6'
#--$" #'6' #,' '(1!" #'' #8' &$!)' #8' ")&%6' $'(' '' *)$"' #1'"?' $'('
#1'" &+' * ") '' ")& ,' ,&+2&!" 4&' 3 #!&+&' #,' 3 #!&+&+' $'(' R1, +(!N
" #'+' +1!)' #)(&$!#', &+6' _&$'&, &+6' 5,&@&'(+6' &!"#, &+6' 5$,+#'N
$.&+6' < !$,$.&+6' 1,$! &+6')$2&-, &+6' #,' #")&,' 3 . ' " &+6' &'&8 !&+6'
#,' 88 !&+6' #,' 5,#%#" #'+' 2 , "1$-6' @?' *)$"&4&,' $%&' !$--&(6' : '#* '6'
#,' (&+!, @&(6' @&' $'(' $,&' + "1$"&(6' "#' ")&' 3$"&+' #8' ")&' +$ (' ,&+2&!" 4&'
&"1, '+

+/ F E #'. /' (2EDE' Z"D/D' /H"O E" CE' 2/D' 27E ' E" CE!' H

< ' '('@&' "81,")&,'&'$!"&(')$"' $--' $'(' &4&,?' ")&' 5#*&,+'
$'(' 1")#, " &+6' 5,#4 + #'+6' &.1-$" #'+6' #,8& "1,&+6' -$1+&+6' $""&,+6'
$'(') ' .+' '' ") +' !" !#'"$ '&(6' '' ,&-$" #'' "#' +)#2+' '' ")& ,'
3 #!&+&+6' +)$--' &9"&'(' $'(' @&' !#'+",1&(' "#' &9"&'(' "#' ")&' ,!)N
@ +)#2+' '' ")&' ,&+2&!" 4&' 3 #!&+&+' #8' *) !)' ")&?' $,&' +)#2+6' $'('
$-+#' '' ")& ,' #* '' 5&!1- $,' R1, +(!" #'+6' $+' 81--?' $'(' &88&!"1$--?'
$+' 8' ")&' ,!)@ +)#2+' *&,&' '$%&(' * ")' ")&' +)#2+' '' &4&,?' +1!)'
$+&

, I / EG H3/ #' .' E" CE' #' +DH I7 2/E'

' '('@&' "8 ,")&,'&'$!"&(6')$"&4&,?' ,!)@ +)#2' $'(' +)#2
* ") '' ")&' % "+' #8' *)#+&' 5,#4 ' !&' #,' 3 #!&+&' ,&+2&!" 4&-?' $'?'
&'&8 !&' #,' 88 !&' #,' 5,#%#" #'' 2 , "1$-6' @?' *)$"&4&,' $%&' !$--&(6'
: '#< '6' #,' (&+!, @&(' ,&+2&!" 4&-?6' &9&%2"' #,' 2&!1- $,6' +)$--' @&' -#!$--?'
+ "1$"&6' +)$--')$4&6' 1+&6' $'(' &9!&,! +&' $--' ")&' 5#*&,+' $'(' 1")#, " &+'
'&!&++$,?' 8#,' ")&' (1&' 9&!1" #'' @?' ")&%' ,&+2&!" 4&-?' #8' $--' ")&' 51,N
2#+&+' $'(' 5,#4 + #'+' #8' ") +' !"6' $'(' 8#,' &'8#,! ' .' ")&' +$%&' * ")'
,&.$,(' ")&,&"#' ,&+2&!" 4&-?6' $+' +1!)' ,!)@ +)#2' $'(' +)#2' ,&+2&!N
" 4&-?' *#1-(')$4&' 1+&(' $'(' &9&,! +&(' 8' ")&' +$%&' *&,&' '#" &9&%2"'
$'(' 2&!1- $,6' @1" *&,&' +1@>&!" '' $--' ,&+2&!"+' "#' ")&' R1, +(!" #'' #8'
+1!)' ,!)@ +)#2' #,' +)#2 ' $'(' *)&,&' $'?' &'&8 !&' #,' 5,#%#" #''
2 , "1$-' $+' $8#,&+$ (6' &9&%2"' #,' 2&!1- $,6' +)$--' @&' -#!$--?' + "1$"&'
* ") '' ")&' % "+' #8' %#,&' ")$'' '&' 5,#4 ' !&' #,' 3 #!&+&6' #,' *)&,&'
")&' +$%&' #,' $'?' #8' ")&%' +)$--' @&' -#!$--?' + "1$"&' @&"*&&' '' ")&' % "+' #8'
$'?' *#' #,' %#,&' +1!)' 3 #!&+&+6' ")&' ,!)@ +)#2' #,' +)#2' #8' ")&'
$")&(,$-')1,!)' "#' *)#+&' 5, 4 ' !&' #,' 3 #!&+&' ")&' 5$, +)')1,!)'
#8' ")&' +$%&' ,&+2&!" 4&-?' +)$--' @&' '&$,&+' '' -#!$-' "1$" #'' +)$--')$4&6'
1+&6' $'(' &9&,! +&' $--' $'(' &4&,?' ")&' 5#*&,+' $'(' 1")#, " &+' *) !)' $,&'
'&!&++$,?' 8#,' ")&' (1&' 9&!1" #'' #8' ")&' 5,#4 + #'+' #8' "-_+' !"6' $'('
&'8#,! ' .' ")&' +$%&' * ")' ,&.$,(' ")&,&"#' ,&+2&!" 4&-?6' $+' +1!)' ,!)N
@ +)#2' #,' +)#2' *%1-(')$4&' 1+&(' $'(' &9&,! +&(' 8' ")&' +$%&' *&,&' '#"
&9&%2"' #,' 2&!1- $,6' @1" *&,&' +1@>&!" '' $--' ,&+2&!"+' "#' ")&' R1, +(!" #''
#8' +1!)' ,!)@ +)#2' #,' +)#2' ,&+2&!" 4&-?6' $'(' ")&' +Z,$&6' 8#,' $--' ")&'
51,2#+&+' #8' ") +' !"6' +)$--' @&' (&&%&(' $'(' "$:&' "#' @&' * ") '' ")&'
% "+' #8' ")&' 5,#4 ' !&' #,' 3 #!&+&' #8' +1!)' ,!)@ +)#2' #,' +)#2]
5,#4 (&(' ")$"' ")&' 5&!1- $,+' @&-#' . ' .' "#' $'?' ,!)@ +)#2, ! :' #,'
+)#2, ! :6' ")#1.)' -#!$--?' + "1$"&' '' $'#")&,' 3 #!&+&6' +)$--' !#'" '1&'
+1@>&!" "#' ")&' ,!)@ +)#2' #,' +)#2' "#' *)#%' ")&?' @&-#' .6' $+' *&--'
8#,' ")&' 51,2#+&+' #8' ") +' !"' $+' 8#,' $--' #")&,' 51,2#+&+' #8' !!-&+ $+" !$-'
R1, +(!" #'

' ' $ B ' ' (2C

' '(' @&' '' & '$!"&(')$" *)&,&' $'?' *# #,' %#,&' 3 .' " &+6' # 3DG'
&'&8 !&+6' < !$,$.&+6' #,' 5&,2&"1$-' 1,$! &+' +)$--' @&')&-(' @?' '&' D#D. HDE' 3 '
' !1%@&' "6' ")$"' ")&' +$%&' +)$--' @&' 4$-1&(' $'(' "$9&(' $+' $' + ' .-&' &'&N OD' 32&DG'
8 !&'] 5,#4 (&(' $-*$?+6' ")$"' '' !$+&' $'?' 3 . ' "?' #,' &'&8 !&' @&' E #476
$""$!)&(' #,' $' '&9&(' "#' #,')&-(' "#.&")&,' * ")' $'?' ,("- +)#2, !:' D#D. HDE'
#,' +)#2, !:6' +1!)' 3 . ' "?' #,' &'&8 !&6' $'(' +1!)' -!)@ +)#2, !:' 2##D&DG' 3 '
#,' +)#2, !:6' +)$--' @&' +&2$,$"&-?' 4$-1&(' $'(' "$9&(' $!!#,(' .' "#' ")&' OD' F27IDG'
,&+2&!" 4&' !$-&+' !#'"$ '&(' '' ")&' !)&(1-&+' "#' ") +' !" $' '&9&(6' EDC2/23D76
$'(' $+' 8' +1!)' &'&8 !&' #,' 3 . ' "?6' $'(' +1!)' ,!)@ +)#2, !:' #,'
+)#2, !:6' *&,&')&-(' $'(' &'>#?&(' @?' +&4&,$-' 5&,+#'+

' '(' @&' '' 81,")&,' &'$!"&(')$" *)&'+#&4&,' $'(' $+' #8"&'' @"D#' 2'
$+' $'?' #8' ")&' ,!)@ +)#2, !:+' #,' +)#2, !:+' '' ' +)$--')$22&'' E" C/ H]'
"#' @&' 4# (6' ")$"' ")&'' ")&' 3&$'' #8' ")&' $")&(,$-')1,!)' *)&,&' ")&' E'F G!' Z" '
&&' #8' +1!)' ,!)@ +)#2, !:' #,' +)#2, !:' @& ' .' 4# (' +)$--')$22&'' "#' E"277' D&DH I 3D'
@&6' #,' ")&' < !$,' H&'&,$-' #8' ")&' 3 #!&+&6' @& ' .' '' #-?' ,(&,+6' #,' + ZD/E' .'
$'?' ,!)(&$!#'' #8' ")&' 3 #!&+&6' $!!#,(' .' "#' ")&' 3 ,&!" #'' #,' ,(&,' 3" E' H3!
#8' +$ (' #%% ++ #'&,+6' "#' @&' %$(&' #,' . 4&'' '' E , " ' .' 1'(&,' ")&'
&$-' #8' ")&' +$ (' #%% ++ #'&,+6' +)$--6' (1, ' .' ")&' <$!$' !?' ")&,&#86'
@&' !)$,.&(' $'(' !)$,.&$@-&' $'(' +')&,&@?' ,&C1 ,&(' "#' (#' #,' !$1+&' "#'
@&' (#'&' $--' $'(' &4&,?') ' .' $'(') ' .+' 8#,' ")&' (1&' 9&!1" #'' #8") +'
!"6' * ") '' ")&' 3 #!&+&' #8' +1!)' ,!)@ +)#2, !:' #,' +)#2, !:6' $+'
")&' +$%&' ,!)@ +)#2' #,' +)#2' #8' ")&' &&' @& ' .' 4# (' +)#1-(')$4&'
(#'&6' $!!#,(' .' $+' '' + - % "&(' $'(' $22# '"&(' @?' ") +' !"6' #,' @?'
$'?' ") ' .')&,& '' !#'"$ '&(] 5,#4 (&(' $-*$?+6' ")$"' (1, ' .' ")&' <$N @"D#' /H"^
!$' !?' #8' ")&' ,!)@ +)#2, !:' #8' ' "N*' '' +)$--' @&' -$*81-' 8#,' +$ (' O E" C/ H]' .'
#%% ++ #'&,+' "#' #,(&,6' (,&!"6' $'(' $22# '' ")&' 3&$'' #8' ' *IO7 #' F G!'
> ' #,' ")&' < !$,' H&'&,$-' #8' +1!)' 3 #!&+&6' @& ' .' '' #-?' Z" ' E"277'
,(&,+6' #,' ,!)(&$!#'' #8' ' '' ' "#' (#' $'(' 2&,8#,%' $--' $'(' &4&,?' D&DH I 3D'
")&' $""&,+' $'(') ' .+' 8#,' ")&' (1&' 9&!1" #'' #8") +' !"' *") '' + ZD/E' .'
+1!)' 3 #!&+&' $+' +1!)' ,!)@ +)#2' +)#1-(')$4&' (#'&6' $!!#,(' .' 3" E H3
$+' '' + - % "&(' $'(' $22# '"&(' @?' ") +' !"6' #,' $'?' ") ' .')&,& ''
!#'"$ '&(

' '(' *)&,&$+' +' $>&+"?')$+' @&&'' .,$! #1+-?' 2-&$+&(' E" C/ H]E'
"#' + . ' 8?' ")$"' 5 &')$+' 2-$!&(' $"' ")&' 3 +2#+$-' #8' 5$,- $%&'' +' #' 3"D' A /E3'
'"&,&+"' '' ")&' &%2#,$- " &+' $'(' 1+"#(?' ")&,&#8' #8' ")&' +&4&,$-' (7IO#' .'
+)#2, !:+' $'(' ,!)@ +)#2, !:+' %&'" #'&(' '' ") +' !"' $'(' ")&' 3"D' H"D^
!)&(1-&' X [' ")&,&"#' $''&9&(')&' '' ")&,&8#,&' &'$!"&(')$"' ")&' GI7D' M P'
+)#2, !:' #8' / ' '#*' 4# (6' +)$--' 8,#%' $'(' $8"&,' ")&' 2$++ ' .' 3 ' 3" E' H3'
#8' ") +' !"6' $'(' ")&' #")&,' +)#2, !:+' '$%&(' '' ")&' ,+'' #-1%'' 2##D&DG' 3 '
#8' ")&' !)&(1-&' X [' "#' ") +' !"' $''&9&(' +)$--6' *)&'' $'(' $+' ")&' OD' I# 3DG' 3 '
+$%&' %$?' +&4&,$--?' @&!#%&' 4# (6' @&' ")&' !&8#,")' 1' "&(' "#' $'(')&-(' 3"D' E" C^
"#.&")&,' * ")' ")&' +)#2, !:' #,' ,!)@ +)#2, !:' %&'"#'&(' '' !#'N / H]E' #2ODG'
>1' !" #'' ")&,&* ")' ,&+2&!" 4&-?' '' ")&' &!#'(' #-1%'' #8' ")&' +$ (' #' 3"D' DH #G'
!)&(1-&' X [' $'(' ")$"' ")&' ,!)@ +)#2+' #,' +)#2+' #8' ")&' ,!)N (7IO#!' H
@ +)#2, !:+' #,' +)#2, !:+' '' +1!)' &!#'(' #-1%'' '$%&(' +)$--6'
$"' +1!)' %&+' ,&+2&!" 4&-?' $+' @&8#,&' %&'" #'&(6' @&' $'(' @&!#%&6'
@?' 4 ,"1&' #8' ") +' !"6' $'(' *")#1"' 81,")&,' H,$'"6' '+"$--$" #'6' #,'
&,&%#'?' *)$"+#&4&,' +)#2+' ,&+2&!" 4&-?' #8' ")&' +$ (' +)#2N
, !:+' '$%&(' '' +1!)' ,+'' #-1%'' '' !#'>1' !" #'' ")&,&* ")6' $'(' +)$--'
)$4&' $'(' &9&,!+&' $--' $'(' &4&,?' ")&' !!-&+ $+" !$-' 5$",#'$.&+' $'('
R1, +(!" #'+' '' $22# '" '.6' !#--$" '.6' $'(' 2,&+&'" ' .' "#' $--' $'(' &4&,?
")&

' å L ' $ B7 ' (2C

")&' 3 .' "&+6' &!"#, &+6' < !$,$.&+6' 1,$! &+6' @$2&-, &+6' #,' #")&,'
88 !&+' #,' 5,#%#"#'+6' $'(' $--' #")&,' R1, +(!"#'+' *)$"+#&4&,6' @?'
)$"&4&,' $%&' !$--&(6' :'#'6' #,' (&+!, @&(6' -$*81--?')$(6' 1+&(6'
&9&,! +&(6' $'('&'>#?&(' @?' ")&' ,&+2&!"4&' +)#2+' #8' ")&' +$ (' +)#2B'
, !:+' '' ")&' ,+'' #-1%'' #8' ")&' +$ (' !)&(1-&' X [' '$%&(6' $+' $-+#'
")&' .)'' # '#% '$" '.' $'(' $22# '" '.'"#' $--' $'(' &4&,?' ")&' 88 !&+'
#8')$'!&--#,6' < !$,' H&'&,$-6' 88 ! $-6' 5, '! 2$-' &. +",$,6' $'(' $--'
#")&,' !!-&+ $+" !$-' 88 !&+' #8' #,' @&-#'. '.' #,' $22&,"$ ' '.' "#' +1!)'
-$+"B%&'"#'&(' +)#2, !:+' ,&+2&!"4&-?' ' $'(' +' %#+'' 9!&--&''
$>&+"?6' +' & ,+' $'(' 1!!&++#,+6' +)$--' $"' $--' %&+' ")&,&$8"&,' .,$''
&$!)' +1!)' +)#2, !:' '' ")&' ,+'' #-1%'' #8' ")&' +$ (' !)&(1-&' X [
6 '$%&(6' "#.&")&,' *")' ")&' +)#2, !:' #,' ,!)@ +)#2, !:' "#' *) !)'
'' %$?')$4&' @&&'' V' "&(' '' %$''&,' $8#,&+$ (6' "#' @&')&-(' @?' #'&'
$'(' ")&' +$%&' 5&,+#'6

.' E" C/ H]' #' DH #G' (7I 0#' .' H"DG I7D'M P' ODH ODE'F G' OD. /D' # #' .'EIH'' E" C/ H]' # A /E3 (7 2 0 #!' 3"D#' EIH'' E" C' 3 ' OD' E" C' .' EIH'' E" C^ / H]

' 5,#4 (&(' $-*$?+6' $'(' @&' '' 81,")&,' &'$!"&(A')$'' 8' $'?'
+)#2, !:' %&'"#'&(' '' ")&' &!#'(' #-1%'' #8' ")&' +$ (' !)&(1-&' X ['
+)$--' @&!#%&' 4# (' @&8#,&' ")&' V' #'' #8' +1!)' +)#2, !:' * ")' ")&'
+)#2, !:' %&'"#'&(' '' ")& ,+'' #-1%'' #8' ")&' +$ (' !)&(1-&6' ")&'' ")&'
+)#2' #8' ")&' +)#2, !:' %&'"#'&(' '' ")&' R ,+'' #-1%'' +)$--' @&!#%&6'
@?' 4 ,"1&' #8' ") +' !"6' $'(' * ")#1'' 81,")&,' H,$'"A' '+"$--$" #'6' #,'
&,&%#'?' *)$"&4&,' +)#2' #8' ")&' +)22, !:' ''+1!)' &!#'(' #-1%''
'$%&(' '' !#'>1'!"#'' ")&,&* ")6' $'(' +)$--')$4&' $'(' &9&,! +&' $--'
5#*&,+' $'(' 1")#, "&+' #8' ")&' +)#2' #8' +1!)' 1' "&(' +)#2, !:+]
5,#4 (&(' $-*$?+6' ")$'' '#") '.')&,&' '' !#'"$ '&(' +)$--' $1")#, L&' #,'
&%2#*&,' $'?' +)#2' #8' $' +)#2, !:' %&'"#'&(' '' ")&' ,+'' #-1%''
#8' ")&' +$ (' !)&(1-&' $')&,&$8"&,' "#' @&' 1' "&(' "#' ")&' 3 #!&+&+' #8'
* '#,' #8' ' '' ' "#' @&!#%&A' @?' 4 ,"1&' #8' ") +' !"6' ,!)@ +)#2'
#8' * '#,' #8' ' '' ,

/H"O E" CE' .' /024'' 2#G' * I07 #' DOC ZD/DG' 3 ' C/DED#3' 2' AD77 Z' .' / # 36' (7^ 7D4D' 3 ' 2' D#D. HD!' 3 ' OD' ED7DH3DG' 2E' "D/D #' OD#^ 3 #DG

< ' 5,#4 (&(' $-+#6' $'(' @&' '' 81,")&,' &'$!"&(A')$'' ''+)$--' $'('
%$?' @&' -$*81-' 8#,' ")&' ,!)@ +)#2' #8' * ' $'(' ,!)@ +)#2' #8'
' '' ' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' "#' &-&!"' 8,#%' $'(' #1'' #8' ")&'
&'&8 !&+' @&-#'. '.' "#' &$!)' #8' ")&' +)#2, !:+' '' ")&')+'' #-1%''
#8' ")&' +$ (' !)&(1-&' X [' %&'"#'&(6' $'(' '#*' 1' ")&' H 8'' #,' #--$" #''
#8' ")&' ,&+2&!"4&' +)#2+' ")&,&#86' ('&' &'&8 !&' '#'' &9!&&('.' ")&'
$''1$-' <$-1&' #8' '&' ")#1+$'(' 5#1'(+6' $'(' "#' ,&"1,'' $' +'' #8' ")&'
+&4&,$-' &'&8 !&+' +#' +&-&!"&(6' 12(&,' ")&' 2 +!#2$-' &$-+6' "#' ")&'
+$ (' #,(' &1"&'$''' #,' #")&,') &8' H#4&>8'#,' (,' H(4&,'#, ' #8'
' $'(' +' $>&+"?;+' 5, 4?' #1'! -' ")&,&6' 8#,' ")&' 22,#4$-A'
$'(' *)&'' $22,#4&(' @?' ")&' +$ (' #,(' &1"&'$''' #,' #")&,') &8'
H#4&,'#,' #,' H#4&,'#,+' $'(' #1'! -6' +1!)' +'' +)$--' @&' ,&. +"&,&('
'' ")&' #--+' 88 !&' #8' +' $>&+"?;+' #1,'' #8')$'!&,? '' '
"#.&")&,' * ")' +1!)' 22,#4$-' $'(' 12#'' &$!)' $'(' &4&,?' 4# ($'!&'
#8' ")&' +$ (' &'&8 !&+' # +&-&!"&(')$22&' '.' 8,#%' %&' "#' %&'
$8"&,' ")&' +$ (' +)#2, !:+' "#' *) !)' ")&' +$%&' %$?' ,&+2&!"4&-?'
@&-#'. +)$--')$4&' @&!#%&' 1' "&(' "#' $'?' #")&,' +)#2, !:+' @?' 4 ,"1&'
#8' ") +' !"6' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' ,!)@ +)#2' #8'
* ' $'(' ,!)@ +)#2' #8' ' '' ' "#' '#% '$"&' $'(' 2,&+&'' #' &$!)'
+1!)' &'&8 !&' '&' #8' ")&' &--#*+' #,' 9B &--#*+' #8' ")&' #--&.&'
#8' ")&' #-?' $'(' V'(4 (&(' , ' "?6' '&$,' ' '' ' @&'.' '' #-?
,(&,+'] 5,#4 (&(' $-*$?+6' ")$'' '' !$+&' ")&' +$ (' *#' ,!)@ +)#2+'
+)$--' '#'' @&' $@-&' "#' $.,&&' '' +1!)' #% '$" #'' $'(' 22# '"%&''6

5,#4 +#' '' !$+&#83 +B'

T' /

#,' +-$-' (&! (&' 12#'' ")&' 5&,+#'' "#' @&' $22# '"&(' "#' ")&' +$ (' 4$!$'" 24/DDOD#3' #8'
&'&8 !&6' ")&' 8 ,+' 1,'' ")&,& '' "#' @&' &9&,! +&(' @?' ")&' ,!)@ +)#2' ")&' /GK'
#8' * ' $'(' 8' #'' ")&' <$!$'!?' #8' $'?' #8' ")&' +$ (' &'&8 !&+'
+#' +&-&!"&(' $+' $8#,&+$ (6' ")&' +$ (' ,!)@ +)#2' +)$--' '#' 2,&+&'"
")&,&"#' +#%&' +1!)' &--#*' !,' 9B &--#*' * ") '' +1!)' &, #(' $+' $'?'
5$",#'' #1.)" "#' 2,&+&'" "#' $' &'&8 !&' '') +' H 8" #,' 5,&+&'"$" #'6'
")&'' $'(' '' +1!)' $+&' ")&' .)" #8' 5,&+&'"$" #'' #,' #--$" #'' "#' +1!)'
&'&8 !&' +)$--6' 8#,' ")$" 1,'6' (&4#-4&' "#' ")&' +)#2' #8' ")&' 3 #!&+&6'
$'(' @&' '' $--' ,&+2&!"+' +1@>&!" "#' ")&' #,('$,?' $*' #8' $2+&' 5,#N
4 (&(' $-*$?+6' ")$" 1'" -' ")&' +$ (' +)#2, !:+' +)$--')$4&' @&!#%&' 1' "&('
"#' $'?' #")&,' +)#2, !:+' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"6' '#") '.'
)&,& '' !#'"$ '&(' +)$--' $-"&,' #,' $88&!" ")&' .)" #8' 5,&+&'"$" #'' #,'
#--$" #'' "#' $'?'#8' ")&' &'&8 !&+' +#' +&-&!"&(' $+' $8#,&+$ (6' $+' $" 2,&+&'"
&'>#?&(' #,' 2#++&++&(' $'(' 2,#4 (&(' 81,")&,6' ")$" $'?' &--#*' #8' ")&' AD77 Z' E '
+$ (' #--&.&' *)#' +)$--' $!!&2" $'?' +1!)' &'&8 !&' +)$--' 4$!$"&') +' D7DH3DG' 3 '
&--#*+) 2' $" +1!)' %&' $'(' '' +1!)' $''&,' $+' $!!#,('.'"#' $'?' A '
"$"1"&6' ?&' $*6' #,' V+$.&' #8' ")&' +$ (' #--&.&6' &--#*+) 2+' $,&' ' 5U
4$!$"&(' 12#'' ")&' !!&2"$'!&' #8' $'?' 4 '.' '' ")&' H 8" #,' 3 +2#+$-
#8' ")&' +$ (' #--&.&

<' 5,#4 (&(' $-+#6' $'(' @&' '' 81,")&,' &'$!"&(')$" ")&' +$ (' (O O EE #^
!!-&+ $+" !$-' #%% ++ #'&,+' 1'(&,' ") +' !" +)$--6' 8,#%' $'(' #1" #8' D/E' 3 ' O2]D'
")&' &4&'1&+' #8' &$!)' +)#2, !:' '' ")&' ,+' #-1%'' %&'" #'&(6' 4 G' *D^
*)&'' $'(' $+' ")&' +$%&' +)$--' @&!#%&' 4&+"&(' '' ")&%6' %$:&' .##(' "#' ")&' . H D#H DE'
+)#2' ")&,&#8' @&!#% '.6' @?' 4 ,"1&' #8' ")&' 5,#4 + #'')&,& 'B@&8#,&' "2CCD# #4' 3 '
!#'"$ '&(' +)#2' #8' ")&' +)#2, !:' %&'" #'&(' '' !#'>1'!" #'' ")&,&N E" CE' O6'
* ")' '' ")&' &!#'(' #-1%'' #8' ")&' +$ (' !)&(1-&6' ")&' 1%' #,' 1%+' 3"D' # #' .'
#8' #'&?' X 8' $'?[' *)&,&@?' ")&' &4&'1&+' #8' +1!)' +)#2, !:' '' +1!)' E" C/ H]E
&!#'(' #-1%'' %&'" #'&(' +)$--' 8$--' +)#," #8' ")&' &4&'1&+' #8' +1!)'
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<' 5,#4 (&(' '&4&,")&-&++6' $'(' @&' '' &'$!"&(6')$" $--' $'(' DOC /27 3 DE'
+ '.1-$,' ")&' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+' ,&+2&!" 4&-?' @&N .' E" C^
-#'. '.'#,' '' $'?* +&' $22&,"$ ' ' '"#' ")&' +)#2, !:+' '' ")&' ,+' / H]E' #' A /E3'
#-1%'' #8' ")&' +$ (' !)&(1-&' X [' '$%&(6' "#.&")&,' * ")' $--' $'(' (7I O#' .'
+ '.1-$,' ")&' ")&+6' &'"+6' $'(' %#-1%&'"+' *)$"+#&4&,' "#' +1!)' 3"D' E2 G'
+)#2, !:+' ,&+2&!" 4&-?' $22&,"$ ' '.'#,' @&-#'. '.6' +)$--6' '' ")&' $+&' H"DG I7D' M P'
#8' ")&' +$ (' +)#2, !:' #8' / ' 8,#%' $'(' $8"&,' ")&' 2$++ '.' #8' FDE3DG' #' 3"D'
") +' !"6' $'(' '' ")&' $+&' #8' ")&' #")&,' +)#2, !:+' '' ")&' +$ (' !)&(1-&' (O O EE #^
X [' %&'" #'&(' +)$--6' 8,#%' $'(' $8"&,' ")&' %&+' *)&'' +1!)' +)#2N D/E' I#GD/'
, !:+' +)$--' @&!#%&' ,&+2&!" 4&-?' 4#' (' #,' 1' "&(' "#' $'?' #")&,' +)#2, !:' 3" E' H3
$+' $8#,&+$ (6' @&' $'(' ")&' +$%&' $,&')&,&@?' ",$'+8&,,&(' "#' $'(' 4&+"&(' ''
")&' +$ (' !!-&+ $+" !$-' #%% ++ #'&,+' $'(' ")&,' 1!!&++#,+' 8#,' &4&,6'
+1@>&!")#*&4&,' "#' $--' &$+&+6' &'"+6')$,.&+6' $'(' '!1%@,$'!&+'
'#*' #,' $" ")&' %&' #8' +1!)' ,$'+8&,' -&.$--?' $88&!" '.' ")&' +$%&6' +$4&'
$'(' &9!&2" ")&' $''1$-' $96' $"&6' #,' ++&++%&'" @?' ") +' !" $1")#N
, L&(' "#' @&' %2#+&(' $'(' -&4 &(' $'(' ")$" $--' ")&' &'"+6' &4&'1&+6'
++1&+6' 5,#8 "+6' $'(' #")&,' %#-1%&'"+' '' $'?' $''&,' $, + '.'#,' $!N
!,1 '.'"#' ")&' +$ (' #%% ++ #'&,+' $'(' ")&,' 1!!&++#,+' 8,#%' #,' #1" #8'
$'?' #8' ")&' +$ (' +)#2, !:+' +)$--' @&' ,&!& 4&(' $'(' $22- &(' @?' +1!)'
#%% ++ #'&,+' $'(' ")&,' 1!!&++#,+' "#6' 8#,6' $'(' 12#'' ")&' +&4&,$-
,1+"+6' V+&+6' $'(' 51,2#+&+' '' ") +' !" %&'" #'&(6' $'(' +1@>&!" "#'
$'(' 1'(&,' ")&' - :&' 1-&+' $'(' &.1-$" #'+' $+' $,&')&,& '' (&!-$,&(' $'(

&92,&++&(' #8' $' (' !#' !&, ' ' . ' ")&' +$ (' $' '1$-' $9' 4&+"&(' '' $' (' %$(&'
2$?$@-&' "#' ")&' +$ (' #%% ++ #'&,+' $' (' ")& ,' 1!!&++#,+

//D2/E' .'
=D#3!' H'
E #HD' *D23"'
.' E" C' .'
@23D/. /G' 3 '
OD' /DH FD/DG'
O6' (O O E^
E #D/E

< ' '(' @&' "' 81,")&,'&'$!"&(6')$"' $--' ,,&$,+' #8' &''' $' ('
#")&,' &' 2#8$-' 5,#8 "+' $' (' %#-1%&' '"+' *) !)')$4&' $!!,1&(' (1&' 8#,'
#,' '' ,&+2&!"' #8' ")&' &&' #8' / ' + ' !&' ")&' +$ (' +)#2, !:' #8'
/ ')$+' @&!#%&' 4# (' +)$--' @?' 4 ,"1&' #8' ") +' !"6' $' (' * ")#1"'
$' ?' E, "' #8' &+" "1" #'' #,' #")&,' 2,#!&++' *)$"&4&,6' @&' '' - :&'
$' '&,' ",$' +8&,,&(' "#' $' (' 4&+"&(' '' ")&' +$ (' #%% ++ #'&,+6' "#6' 8#,6'
$' (' 12#'' ")&' - :&' ,1+"+6' V+&+6' $' (' 51,2#+&+6' $' (' +1@>&!"' "#' ")&'
- :&' 1-&+' $' (' &.1-$" #'+6' $+' $8#,&+$ (' ' $' (' ")$"' ")&' +$ (' #%% +N
+ #'&,+' +)$--' $' (' ")&?' $,&')&,&@?' $1")#, L&(' $' (' &%2#*&,&(6' & ")&,'
@?' !" #'' #8' #4&'$''' #,' 3&@"6' #,' @?' !" #'' #'' ")&' $+&6' $+' 8#,'
V+&' $' (' !!12$" #'6' "#' +1&' 8#,' $' (' ,&!#4&,' $)' $' (' &4&,?' ")&' ,,&$,+'
#8' &''' (1&6' #,' *) !)' +)$--')$4&' $!!,1&(' #,' @&!#%&' (1&' + '!&' ")&'
3&$")' #8' ")&' +$ (' -$"&' +)#2' #8' / ' $' (' ")$"' '' +)$--' $' ('
%$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' $' (' ")&?' $,&')&,&@?'
$1")#, L&(' $' (' &%2#*&,&(6' "#' (+",$ '' 82,'K 1!)' ,,&$,+' $' (' &4&,?'
5$,'' ")&,&#86' $' (' +)$--' $' (' %$?' $4#*' .&'&,$--?' 8C,' ")&' +$%&

(O O EE #^
D/E' 3 ' C26'
I O EH"2/4DG'
#' E" C'
/ H]' .'@23D/^
. /G' 3 '
&DH I 3 /E' .'
*DHD2EDG

< ' '(' 2,#4 (&(' $-+#6' $' (' @&' "' 81,")&,'&'$!"&(')$"' ")&'
+$ (' #%% ++ #'&,+' +)$--' $' (' ")&?' $,&')&,&@?' ,&C1 ,&(' $' (' (,&!"&('
"#' 2$?' $' (' +$" +8?' ")&' 9&!1"#,+' #,' (% ' +",$"#,+' #,' ++ . '+' #8'
3#!"#,' (+ ' -$"&' +)#2' #8' / ' @?' +1!)' '+"$-N
%&''"+6' "#' @&' %$(&' '' +1!)' $' '&,' $' (' $"' +1!)' 5&, #(+' 8,#%' $' ('
$8"&,' ")&' 2$++ ' .' #8' ") +' !"6' $+' $'?' 1!!&++#,' "#' +1!)' +)#2, !:' ")&''
$22# '"&(' *#1-(')$4&' @&&'' @#1' (' #,' - $@-&' 8' $'?' +1!)' 1!!&++#,'
)$(' @&&'' $22# '"&(' #'' #,' @&8#,&' ")&' ,+' 3$?' #8' & '&'
")#1+$' (' & .)")1' (,&(' $' (' ") ,"?B8#1,6U $--' $' (' &4&,?' +1!)' 1%'
$' (' 1%+' #8' #'&?' *) !)6' 21,+1$'' "#' $'?' $*' #,' "$"1"&' ''
8#,!&' '' '$"' ")&' 2$++ ' .' #8' ") +' !"6' !#1-(' #,' % .)")$4&' @&&''
,&!#4&,&(' @?' +1!)' 9&!1"#,' #,' (% ' +",$"#,' 8,#%' #,' $.$ '+"' ")&'
1!!&++#,' #8' ")&' +$ (' -$"&' +)#2' #8' / '' !$+&' ") +' !"')$('
'#"' @&&'' 2$++&(' ' $' (' 2,#4 (&(' 81,")&,6' ")$"' ")&' +$ (' #%% ++ #'&,+'
+)$--' @?' +1!)' '+"$-%&''"+6' "#' @&' %$(&' ''+1!)' $' '&,' $' (' $"' +1!)'
5&, #(+' 8,#%' $' (' $8"&,' +1!)' ,&+2&!" 4&' <$!$'! &+' #8' ")&' #")&,'
+)#2, !:+6' +$4&' $' (' &9!&2"' ")&' +)#2, !:' +' #8' ++#,?' $' (' #8' #,''
$' (' '$%&(' '' ")&' ,+' #-1%'' #8' ")&' !)&(1-&' X [' "#' ") +'
!' $' '&9&(' $+' $8#,&+$ (6' #,' 8,#%' $' (' $8"&,' ")&' ' '&9$" #'' ")&,&#8'
"#' $'?' #")&,' +)#2, !:' 1' (&,' 5,#4 + #'+')&,& 'B@&8#,&' !#''$ '&(6'
$+' $'?' 1!!&++#,+' ")&,&"#' *#1-(')$4&' @&&'' ,&+2&!" 4&-?' @#1' (' #,'
- $@-&' 8' +1!)' 1!!&++#,+')$(' @&&'' $22# '"&(6' 2$?' "#' $' (' +$" +8?' ")&'
5&,+#'' #,' 5&,+#'+6' #,')' ")&' ,&+2&!" 4&' 9&!1"#,+6' (% ' +",$N
"#,+6' #,' ++ . '+6' $+' ")&' $+&' %$?' @&6' @?' *)#+&' 5,#%#" #'' #,' 3&$")'
+1!)' <$!$'!?' +)$--')$4&' #!!1,,&(' #,' @&&'' #!!$+ #'&(6' #,' *)#' +)$--'
@&!#%&' ")&' +)#2' #8' $'?1' "&(' +)#2, !:+6' $--' $' (' &4&,?' +1!)' 1%'
$' (' 1%+' #8' #'&?' $+' @?' 8#,!&' #8' $'?' $*' #,' "$"1"&' #,' V+$.&')$+'
#,')$4&')&,&"#8#,&' =@&&'' !)$,.&(' 12#'' ")&' +$ (' #")&,' +)#2, !:+' 12#''
")&' +$%&' @&!#%' '.' 4# (' ,&+2&!" 4&-?6' $' (' *) !)' *#1-(')$4&' @&&''
2$?$@-&' "#' $' (' ,&!#4&,$@-&' @?' +1!)' 5&,+#'+' ,&+2&!" 4&-?6' #,' ")& ,'
,&+2&!" 4&' 9&!1"#,+6' (% ' +",$"#,+6' #,' ++ . '+6' 8,#%' #,' $.$ '+"'
")& ,' ,&+2&!" 4&' 1!!&++#,+' ''+1!)' +)#2, !:+6' '' !$+&' ") +' !"')$('
'#"' @&&'' %$(&

' ' %   B '   ' (2C

' '(@&' "81,")&,' &'$!"&(6')$"' '' ")&' $+&' #8' ")&' +$ (' (O O EE #'
+)#2, !:' #8' / ' ' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ ('
#%% ++ #'&,+' 8,#%' $'(' $8"&,' ")&' 2$++ '.' #8' ") +' !"6' $'(' '' ")&'
$+&' #8' ")&' #")&,' +)#2, !:+' '$%&(' '' ")&' ,+' #-1%'' #8' ")&' #8' E" C'
!)&(1-&' X [' "#' ") +' !"' $''&9&(6' +$4&' $'(' &9!&2"' "->&' +)#2, !:+' / H]E' ODH O'
#8' ! ' $'(' #8' +' $'(' ' ' +)$--' $'(' %$?' @&' -$*81-' 8#,' +1!)' F2H2#3'
#%% ++ #'&,+' $"' $'(' $8"&,' +1!)' %&+' $+' ")&' +$ (' +)#2, !:+'
+)$--' @&!#%&' ,&+2&!" 4&-?' 4$!$'"6' #,' 1' "&(' "#' $'?' #")&,' +)#2, !:'
#,' ,!)@ +)#2, !:' $+' $8#,&+$ (6' $'(' +1!)' #%% ++ #'&,+' $,&')&,&@?'
&%2#*&,&(6' @?' $'(' * ")' ")&' #'+&'' #8' ")&' #,(' &1"&'$'' #,' #")&,'
) &8' H#4&,'#,' #,' H#4&,'#,+' '' ' "#' @&' "&+" 8 &(' '' E , " '.'
1'(&,') +' #,' ")& ,' $'(' #,' $'(+6' "#' (&% +&' 8#,' $'?' &,%' #8' 4&+' #,'
&$,+6' #,' 4&+' $'(' &$,+6' * ")' $' #4&'$'' "#' %$:&' 4# (' ")&' +$ ('
3&% +&' '' !$+&' #8' $++ .' '.' #,' +1@-&"" '.6' $'(' 8#,' +1!)' &'' #,' '&' $+'
+)$--' @&' +2&! 8 &(' '' $'(' @?' +1!)' #'+&'' $+' $8#,&+$ (6' ")&' &&' #1+&' $'('
88 !&+6' $'(' $--' #,' $'?' 5$,' #8' ")&' &'+$-' #,' 3&%&+'&' $'(+' #8' #,'
@&-#'. '.' "#' ")&' +$ (' +)#2, !:' #8' / ' #,' "#' ")&' +$ (' #")&,'
+)#2, !:+6' +$4&' $+' $8#,&+$ (] 5,#4 (&(' $-*$?+6' ")$"' 8' ")&' +)#2'
8#,' ")&' %&' @&' '.' #8' ")&' +)#2, !:' "#' *) !)' +1!)' +)#2, !:'
#8' / ' #,' +1!)' #")&,' +)#2, !:6' +$4&' $+' $8#,&+$ (6' +)$--'
@&' 1' "&(' @?' 4 ,"1&')&,&#8' $+' $8#,&+$ (6' (#' $'(' +)$--6' * ")' $'(' @?'
")&' - :&' #'+&'' $+' $8#,&+$ (6' "#' @&' "&+" 8 &(' $+' $8#,&+$ (6' &-&!"' $'('
!)##+&' ")&' &&' #1+&' #8' +1!)' +)#2, !:' #8' / ' #,' +1!)' #")&,'
+)#2, !:6' +$4&' $+' $8#,&+$ (6' "#' @&' $'(' !#'" '1&' 8#,' &4&,' "#' @&' ")&'
&&' #1+&' #8' +1!)' 1' "&(' +)#2, !:6' '' +)$--' '#' @&' -$*81-' 8#,' ")&'
+$ (' #%% ++ #'&,+' +#' "#' (&% +&' ")&' +$ (' &&' #1+&' $'(' 88 !&+' +#'
+&-&!"&(' $'(' !)#+&'' $+' $8#,&+$ (6' '#,' ")&' &'+$-' #,' 3&%&+'&' $'(+'
")&,&#8' #,' ")&,&"#' ,&+2&!" 4&-?' @&-#'. '.' ' $'(' '' +1!)' $+&' '+)$--' @&'
$'(' @&!#%&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' $'(' ")&?' $,&')&,&@?'
&%2#*&,&(6' @?' $'(' * ")' ")&' - :&' #'+&'' $+' $8#,&+$ (6' "#' @&' "&+" 8 &('
$+' $8#,&+$ (6' "#' (&% +&6' '' - :&' $''&,' $'(' 12#'' ")&' - :&' &,%+' $+'
$8#,&+$ (6' ")&' &&' #1+&' $'(' 88 !&+' #8' ")&' +)#2, !:' "#' *) !)' +1!)'
+)#2, !:' #8' / ' #,' +1!)' #")&,' +)#2, !:6' +$4&' $+' $8#,&+$ (6'
+)$--' @&' 1' "&(' $+' $8#,&+$ (6' @?' 4 ,"1&' #8' ") +' !"6' "#.&")&,' * ")' $'?'
5$,' #8' ")&' &'+$-' #,' 3&%&+'&' $'(+' ")&,&#8' #,' ")&,&"#' ,&+2&!" 4&-?'
@&-#'. '.6' '+"&$(' #8' ")&' &&' #1+&' $'(' &'+$-' #,' 3&%&+'&' $'(+'
#8' +1!)' +)#2, !:' #8' / ' #,' #")&,' +)#2, !:+' +#' ,&+2&!" 4&-?'
@&!#% '.' 4$!$'"6' #,' 1' "&(' "#' $'?' #")&,' ,!)@ +)#2, !:' #,' +)#2, !:6'
+$4&' $+' $8#,&+$ (

' 5,#4 (&(' $-*$?+6' $'(' @&' '' &'$!"&(')$"' 8' +1!)' #'+&''+' (+'
$+' $8#,&+$ (' @&' '#' ,&! "&(' '' ")&' ,&+2&!" 4&' 3&&(+' #8' 3&% +&' $'
$8#,&+$ (6' $'(' 8' ")&' +$ (' 3&&(+' #8' 3&% +&' (#' '#' !#'"$ '' +1!)' " '
#4&'$'' $+' $8#,&+$ (' $.$ '+' $++ .' '.' #,' +1@-&"" '.6' #,' @&' '#'
,&+2&!" 4&-?' &9&!1"&(' @?' ")&' +$ (' #%% ++ #'&,+' '' ")&' $''&,' =DH 327E'
)&,& 'B@&8#,&' (,&!"&(' $+' "#' ")&' 9&!1" #'' #8' 3&&(+' @?' +$ (' #%N 2#G' +2/3 DE'
% ++ #'&,+6' $'(' ")&' +$ (' +)#2+' #8' ")&' +)#2, !:+' *) !)' +)$--' #DHDEE2/6'
@&!#%&' 1' "&(' '' %$''&,' $8#,&+$ (6' 8#,' ")&' %&' @&' '.' ,&+2&!" 4&-?6' 3' *DDGE' .'
")$"' ")&'' ")&' +$ (' 3&% +&+' +)$--' @&' ,&+2&!" 4&-?' '1--' $'(' 4# (' "#' $--' *D O ED' .'
''&''+' $'(' 51,2#+&+' *)$"+#&4&, DD' > I EDE

' '(' @&' "' 81,")&,' &'$!"&(6')$"' "' +)$--' @&' -$*81-' 8#,' ")&'
+$ (' #%% ++ #'&,+6' *(&'' $'(' +#' +##'' $+' ")&' +$ (' +)#2, !:' #8' #8 ++#,?
! ' $'(' +)#2B

/ H]' .' (/]' 2#G = EE E"27 OD I # 3DG 3 ' AD/#E 2#G D 4"7 # 2#G 3 ' (7 6#D /DECDH3 FD76! 3"D DD > I EDE! H' .' AD/#E 2#G D 4"7 # 2#G .' (7 6#D E"277 OD E 7G /'D&H"2#4DG

! ' $'(+)#2, !:' #8 + $'(' & ' +)$-- @&6 1'(&,' ")& 5,#N 4 + #'+ #8 ") + !"6 1' "&(' "#")& +) 2, !:+ #8 1 ' $'(' B$'(' #8 ,&+2&!" 4&-?6 ' - :& $''&,' "# (&% +&6 B* ") ")& - :& #'+&'' $'(' +1@>&!" "# ")& +$%& #4&'$'"+ $+ $8#,&+$ (6 ")& && #1+&+ $ 8(88 !&+ $'(' $-- #,' $'? 5$," #8 ")& &'+$- #,' 3&%&+'& $'(+ #8 #,' @&-#' . ' . "# ")& +$ (+)#2,>!:+ #8 1 *' $'(' $'(' #8 ' ,&+2&!" 4&-? ' $'(' ")& && #1+&+ $'(88 !&+ $'(' &'+$- #,' 3&%&+'& $'(+ "# ")& +$ (+)#2, !:+ #8 ! ' $'(' + $'(' ,&+2&!" 4&-? @&-#' . ' . +)$-- @& $'(' @&!#%& ")&'$8"&,' ")& && #1+&+6 88 !&+6 $'(&'+$- #,' 3&%&+'& $'(+ #8 +1!)' 1' "&(+)#2, !:+ ! ' $'(' #8 1 ' $'(' $'(' #8 + $'(' &'(' #8 ' ,&+2&!" 4&-?

CC7 H23 # .' = D#3E 2#G A #DE

' '(' @& " 81,")&,' &'$6!"&(6)$" ")& '&+ $, + ' . ' #,' "# $, +& 8,#%' +1!)' 3&% +&+ $+ $8#,&+$ (6 "#.&")&,' * ")' ")& &'"+ "# @& ")&,&@? ,&+2&!" 4&-? ,&+&,4&(7 +)$-- @& $22- &(' $'(' (+2#+&(' #8 @? +$ (#%% ++ #'&,+ 8#,' ")& +&4&,$- 51,2#+&+6 $'(' +1@>&!" "# ")& - :& 1-&+ $'(&.1-$" #'+6 $+ $,&)&,& '' %&'" #'&(' * ")' ,&+2&!" "# ")& +$ ($''1$- $9)&,&@? 4&+"&('' $'(' %$(& 2$?$@-& "# +$ (#%N % ++ #'&,+

) 3Z 3"^ E32#G #4 +/D.D/D#HD .' 3"D #DZ DD > I EDE! 3"D I O E C262O7D # /DECDH3 .' DD > I ED O6 3"D I H^ HDEE /E 3 ' H #3 # I D C262O7D

' 5,#4 (&(6$'(' @& " 81,")&,' &'$!"&(')$" $-- $'(' &4&,?")& 1%' $'(1%+ #8 #'&? *) !)6 21,+1$'' "# $'? $*' #,' "$"1"& '' 8#,!& '' ' E#1-(#,' % .)")$4& @&!#%& 2$?$@-& @? ,' ,&!#4&,N $@-& $.$ '+" ")& 1!!&++#,' #,' 1!!&++#,+ '' ")& +)#2, !:' #,' ,!)B @ +)#2, !:' "# *) !)' $'? && #1+& $'(88 !&+ E ' (&% +&(6 21,+1$'' "# +1!)')# !& $'(-&!" #'' $+ $68#,&+$ (6 %$?)$4& ")&,&"#8#,& @&-#2.&(6 +)$-- @& $'(' @&!#%& $'(' ,&%$ '' 2$?$@-& @? $'(' ,&!#4&,N $@-& $.$ '+" +1!)' 1!!&++#,' #,' 1!!&++#,+ ")&,& '' '#"* ")+"$'(' .' ")& &-&!" #'' #,')# !& #8 $'? #")&,' && #1+& 1'(&,' ")& 5,#4 + #'')&,& 'B@&8#,& !#'"$ '&(6 $'(' $+ 8 +1!)' && #1+& +# (&% +&(')$(' !#'" '1&(' "# @& ")& && #1+& #8 +1!)' +)#2, !:

+/ F G #4 . /' +26 0 D#3 .' 3"D 2O 7 3 DE I C # 3"D EDFD/27 E" C/ H]E .' AD/#E! /' 2.3D/' 3"D /' # #

< ' '(' @& " 81,")&,' &'$!"&(')$" ")& +$ (#%% ++ #'&,+ +)$--6 @? +1!)' '+"$-%&'"+6 "# @& %$(& '' +1!)' $''&,6 $'(' $" +1!)' 5&, #(+ 8,#%' $'(' $8"&,' ")& ,&+2&!" 4& 5&, #(+ *)&'' ")& +)#2, !:' #8 1 ' $'(' +)$-- @&!#%& 1' "&(' "# ")& +)#2, !:' #8 ! ' $'(' ")& +)#2, !:' #8 ' 1' "&(' "# ")$" #8 + $'(' ' $+ $'? 1!!&++#,+ ")&,&"# *#1-(')$4& @&&'' ,&+2&!" 4&-? @#1'(' #,' - $@-& 8 +1!)' 1!!&++#,+)$(' @&&'' $22# '"&(6 2$? "# ")& 5&,+#'+ #,' ")& ,' &2,&+&'"$" 4&+ @? *)#+& 5,#%#" #'' #,' 3&$")6 #,' *)# +)$-- @&!#%& ")& +)#2+ ,&+2&!" 4&-? #8 +1!)' 1' "&(+)#2, !:+6 $-- $'(' &4&,? +1!)' 1%' #,' 1%+ #8 #'&? $+ *#1-( )$4& @&&'' 2$?$@-& @? #,' ,&!#4&,$@-& $.$ '+" ")& +&4&,$- 1!!&++#,+ '' ")& +$ (+)#2, !:' #8 1 ' $'(' $'(+)#2, !:' #8 ' ,&+2&!" 4&-? '' !$+& ")+ !")$('#" @&&'' 2$++&(' $'(' ")& +)#2+ #8 +1!)' 1' "&(+)#2, !:+ #8 1 ' $'(' $'(' #8 ! ' +)$-- @& $'(' @&!#%& - $@-& "# ")& 5$?%&'" #8 $-- +1!)' - :& 1%' #,' 1%+ #8 #'&? $+ $'? 1!!&++#,' #,' 1!!&++#,+ '' ")& +$ (+)#2, !:' #8 ! ' *#1-( )$4& @&&'' '' !$+& ")+ !")$(' '#" @&&'' 2$++&(' $'(")& +)#2+ #8 +1!)' 1' "&(' 3 #!&+&+ #8 ' $'(' #8 + $'(' +)$-- @& $'(' @&!#%& - $@-& "# ")& 5$?%&'" #8 $-- +1!)' - :& 1%' #,' M 1%+ #8 #'&? $+ $'? 1!!&++#,' #,' 1!!&++#,+ '' ")& +$ (+)#2B /H]

$ $ B' ' (2C '

, ! :' #8' +' $'(') ' *#1-(')$4&' @&&'' '' !$+&' ") +' !'')$(' '#''
@&&'' 2$++&(] 5,#4 (&(' ")$'' '#") ' .')&,& '' !#'"$ '&(' +)$--6' '' ")&'
4&''' #8' ")&' '#*' +)#2+' #8' ! ' $'(' #8' +' $'(' #8' ' @&!#%N
' .' ,&+2&!" 4&-?' +)#2+' #8' +1!)' 1' "&(' +)#2, ! :+6' $-"&,' #,' $88&!''
")&' $@ - " &+' "#' ")&%' ,&+2&!" 4&-?' #8' ")& ,' 1!!&++#,+ 6

<' '(' @&' '' 81,")&,' &'$!"&(6')$'' ")&' +$ (' #%% ++ #'&,+' +)$--')$4&' $--' +1!)' $'(' ")&' - :&' 5#*&,+' #8' .,$'" '.6' !#'4&? '.6' &9!)$'. '.6' -&$+ '.6' $'(' (&% + '.' $--' #,' $'?' 5$,'' #8' ")&' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+6' $'(' 5#++&++ #'+' X+$4&' $'(' &9!&2'' ")&' &&' #1+&+6' 88 !&+6' $'(' &'+$-' #,' 3&%&+'&' $'(+')&,& 'B@&8#,&' 2,#4 (&(' 8#,6[' #8' #,' @&-#'. '.' #,' $22&,"$ ' '.' "#' ")&' +$ (' +)#2, ! :' #8' / ' #,' "#' ")&' +$ (' #")&,' +)#2, ! :+' '' ")&' ,+'' #-1%'' #8' ")&' +$ (' !)&(1-&' %&'" #'&(' ,&+2&!" 4&-?6' *)&'' ")&' +$%&' +)$--6' 21,+1$'' "#' ")&' 5,#4 + #'+' #8' ") +' !"6' @&' ,&+2&!" 4&-?' 4&+"&(' '' ")&' +$ (' #%% ++ #'&,+6' $+' ")&' +)#2+' ")&,&#8')$4&' ,&+2&!" 4&-?')&,&N "#8#,&')$(' $'(' &'>#?&(' @?' 4 ,"1&' #8' $'?' $*' '' 8#,!&' $'' ")&' 2$++ '.' #8' ") +' !"' $'(' ")$'' $--' $'(' &4&,?' !'' #,' !"+' &'$@- '.' +1!)' +)#2+' ,&+2&!" 4&-?' "#' .,$'"6' !#'4&?6' &9!)$'.&6' -&$+&6' #,' (&% +&' +1!)' $'(+6' &'&%&'"+6' #,' &,&("$%&'"+6' $'(' 5#++&++ #'+' $+' $8#,&N +$ (6' #,' $'?' 5$,'' ")&,&#86' #,' (+$@- '.' #,' ,&+",$ ' '.' ")&%' ,&+2&!N " 4&-?' 8,#%' +#' (# '.6' +)$--' $22-?' $'(' @&' !#'+",1&(' "#' $22-?' $'(' &9"&'(' "#' ")&' +$ (' #%% ++ #'&,+' $+' 8' ")&?')$(' @&&'' '$%&(' '' +1!)' !'' #,' !"+6' $'(' $+' 8' ")&' 5,#4 + #'+' #8' +1!)' !'' #,' !"+')$(' @&&'')&,& '' &92,&++-?' ,&B&'$!"&(6' +1@>&!'' $-*$?+' "#' ")&' 5,#4 + #'+')&,& 'B$8"&,' !#'"$ '&(' *")' ,&+2&!'' "#' ")&' &'&*$-' #8' $'?' &$+&' #,' &$+&+')&,&"#8#,&' %$(&' #8' +1!)' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+6' $'(' 5#++&++ #'+' H,$'"+' #8' 5&,2&"1 " &+' ")&,&

<' '(' @&' '' 81,")&,' &'$!"&(6')$'' *)&'' $'(' $+' ")&' '#*' ,!) &2 +!#2$-' &&+' #8' 5 *' $'(' ' +)$--' @&!#%&' +&4&,$--?' 4# (6' ")&' +)#2+' #8' 5 *' $'(' ' +)$--' ")&'!&8#,")' 8#,' &4&,' ,&+2&!N " 4&-?' !&$+&' "#')$4&' #,' &9&,! +&' ,!) &2 +!#2$-' R1, +(!" #'' * ") '' ")&' +$ (' 5,#4 '!&+' #8' 5 *' $'(' -' $'(' $--' +1!)' ,!) &2 +!#2$-' R1, +(!" #'' $+' %$?')$4&' ")&,&"#8#,&' @&-#' .&(' "#' $'(' @&&'' &9&,! +&(' @?' ")&' +)#2' #8' 5 *' +)$--' @&' ",$'+8&,,&(' "#' $'(' 4&+"&(' '' ")&' ,!)@ +)#2' #8' * ' 8#,' ")&' %&' @&' '.6' $'(' $--' +1!)' ,!) &N 2 +!#2$-' R1, +(!" #'' $+' %$?')$4&' ")&,&"#8#,&' @&-#' .&(' "#' $'(' @&&'' &9&,! +&(' @?' ")&' +)#2' #8' ' +)$--' @&' ",$'+8&,,&(' "#' $'(' 4&+"&(' '' ")&' ,!)@ +)#2' #8' ' ' ' 8#,' ")&' %&' @&' '.' $'(' ")&' +)#2+' #8' 5 *' $'(' ' +)$--6' $+' *&--' $+' ")&' #")&,' +)#2+' #8' ")&' +$ (' 5,#4 '!&+' #8' 5 *' $'(' ' @&' +1@>&!'' "#' ")&' ,!)@ +)#2+' #8' * ' $'(' ' ' ' ,&+2&!N " 4&-?' ' $'(' ")&' +$ (' ,!)@ +)#2+' #8' * ' $'(' ' ' $'(' ")&,' 1!!&++#,+' ,&+2&!" 4&-?6' +)$--')$4&6' 1+&6' $'(' &9&,! +&6' * ")#1'' 81,")&,' H,$'"6' '+"$--$" #'6' #,' &,&%#'?' *)$"+#&4&,6' $--' $'(' + '.1-$,' ")&' &",#2#- "$'' .)"+6' 5, 4 -&.&+6' ,$'!) +&+6' 31" &+6' 5#*&,+6' $'(' 1")#, " &+' ")&,&"#8#,&' &9&,! +&(' #,' *) !)' % .)'')$4&' @&&'' &9&,N ! +&(' * ") '' ")&' +$ (' 5,#4 '!&+' #8' 5 *' $'(' ' ,&+2&!" 4&-?] 5,#4 (&(' $-*$?+6' ")$'' '#") '.')&,& '' !#'"$ '&(' +)$--' '' $'?' ,&+2&!'' $@, (.&' #,' $88&!'' ")&' R1, +(!" #'6' 5, 4 -&.&+6' .)"+6' #,' 1")#, "?' #8' ")&' ,!)@ +)#2' #8' * ' $+' 5, %$"&' #8' $--' ,

Q' <,' '(

D2E #4' + ZD/E' 4/2#3DG' 3 ' (O O EE #^ D/E' Z 3''' /DECDH3' 3 ' E" C/ H]E' FDE3DG' # 3"D O' O6' 3"D' +/ F E #E' .' 3" E' H3

/H"O E" C ' / H]E' .' (2E"D7' 2#G' I2O' 2#^ #D&DG' 3 ' /O24''' 2#G' * IO7 #' /D^ ECDH3 FD76

E" C/ H]E' .' ? 7/2 /D' 2#G' /G24"' I# 3DG

< ' '(' @&' "' &'$!"&(')$"' *)&"' $'(' +# +##"' $+' ")&' '#*' ,!) &2 +!#2$-' &&' #8' 5 *' +)$--' @&!#%&' 4# (6' ")&' +)#2, !:' #8' ' '#*')&-(' ")&,&* ")6' +)$--' @&' 1' "&(' "#' $'(')&-(' "#.&")&,' * ")' ")&' +)#2, !:' #8' 0 * ' $'(' ")$"' ")&' ")&' ' +)#2' #8' 0 * ' +)$--' @&' $'(' @&!#%&6' @?' 4 ,"1&' #8' ") +' !"6' $'(' * ")#1"' 81,")&,' H,$'"6' '+"$--$" #'6' #,' &,&%#'?' *)$"+#&4&,6' +)#2' #8' ' $'(')$4&' $'(' &9&,! +&' $--' $'(' &4&,?' ")&' !!-&+ $+" !$-' 5$",#'$.&+' $'(' R1, +(!N "#'+' ' $22# '" '.6' !#--$" '.6' $'(' 2,&+&'" '.' "#' $--' $'(' &4&,?' ")&' 3 .' " &+6' &!"#, &+6' < !$,$.&+6' 1,$! &+6')$2&-, &+6' #,' #")&,' 88 !&+' #,' 5,#%#" #'+6' @?' *)$"&4&,' $%&' !$--&(6' :'#*'6' #,' (&+!, @&(6')&,&N "#8#,&' -$*81--?')$(6' =1+&(6' &9&,! +&(6' $'(' &'>#?&(' @?' ")&' ,!)@ +)#2' #8' 5 *' $+' +)#2' #8' ' $+' $-+#' ")&' .)"' #8' '#% '$" '.' $'(' $22# '" '.' "#' $--' $'(' &4&,?' ")&' 88 !&+' #8')$'!&--#,6' < !$,' H&'&,$-6' 88 ! $-6' 5, '! 2$-' &. +",$,6' $'(' $--' #")&,' !!-&+ $+" !$-' 88 !&+' #8' #,' @&-#'. '.' "#' ")&' +$ (' +)#2, !:' #8' ' ' $'(' +' %#+"' 9!&--&'"' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' +)$--' $"' $--' %&+' ")&,&$8"&,' .,$'"6' "#' @&')&-(' @?' #'&' $'(' ")&' +$%&' 5&,+#'6' ")&' +$ (' +)#2, !:+' #8' 0 * ' $'(' ' "#.&")&,' * ")' +1!)' #")&,' +)#2, !:' $+' +)$--' 1'(&,' ")&' 5,#4 + #'+' @8' ") +' !"' @&' $22# '"&(' "#' @&')&-(' "#.&")&,' * ")' +1!)' +)#2, !:' #8' 0 * ,

DOC /27`' 3 DE' .' /G24"' FDE3DG' #' 3"D'

< ' 5,#4 (&(' $-*$?+6' $'(' @&' "' &'$!"&(7)$"' $--' $'(' + '.1-$,' ")&' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+6' "#.&")&,' * ")' $--' $'(' + '.1-$,' ")&' ")&+6' &'"+6' $'(' %#-1%&'"+6' "#' ")&' +$ (' +)#2, !:' ' $22&,"$ ' '.' $'(' @&-#'. '.6' +)$--6' 8,#%' $'(' $8"&,' ")&' %&'

!"' *)&"' ")&' +$ (' '#*' ,!) &2 +!#2$-' &&' #8' 5 *' +)$--' @&!#%&' 4# ($+' $8#,&+$ (6' @&' $'(' ")&' +$%&' $,&')&,&@?' ",$'+8&,,&(' "#' $'(' 4&+"&(' ' ")&' $ (' !!-&+ $+" !$-' #%% ++ #'&,+' $'(' ")&,' 1!!&++#,+' 8#,' &4&,6' "#' $'(' 8#,' ")&' - :&' ,1+"+6' V+&+6' $'(' 51,2#+&+6' * ")' ")&' - :&' 5#*&,+6' $'(' +1@>&!"' ' $--' ,&+2&!"+' "#' +1!)' $'(' ")&' - :&')$,.&+6' #'("#'+6' $'(' &.1-$" #'+6' $+')&,& 'B@&8#,&' 2,#4 (&(' ' ,&+2&!"' #8' ")&' +)#2N , !:+' %&'" #'&(' ' ")&' ,+' #-1%' #8' ")&' +$ (' !)&(1-&' X [' "#' ") +' !"' $''&9&(

DOC /27^ 3 DE' .' 3"D' *D2#D/6' .' ("/ E3H" I/H"' 3 ' OD' GDDODG' +2/3' .' 3"D' D#5C /27 ' 3 DE' 3P.' 3"D' E" C/ H]' .' ? 7G2/D

' '(' @&' "' &'$!"&(')$"' $--' $'(' + '.1-$,' ")&' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+6' * ")' $--' $'(' + '.1-$,' ")&' ")&+6' &'"+6' $'(' %#-1%&'"+' *)$"+#&4&,6' $22&,"$ ' '.' #,' @&-#'. '.' "#' ")&' 5,&!&2"#,?' #8' 5 ' #,' 3&$'&,?' #8' ' ')&,&"#8#,&')&-(' $'(' &'>#?&(' ' * * *' #,' #")&,* +&' @?' ")&' +)#2' #8' 0 ' ")&' %&' @&'.6' $+' 3&$"' #8' ' ' #,' @?' *)$"&4&,' #")&,' "-&6' +)$--' @&' (&&%&(' $'(' "$:&' "#' @&6' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' 5$,"' #8' ")&' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+6' ")&+6' &'"+6' $'(' %#-1%&'"+6' $22&,"$ ' '.' $'(' @&-#'. '.' "#' ")&' $ (' +)#2, !:' #8' 0 ' $'(' @&' ' - :&' $''&,' $'(' %&' ",$'+8&,,&(' "#' $'(' 4&+"&(' ' ")&' +$ (' !!-&+ $+" !$-' #%% ++ #'&,+' $'(' ")&' 1!!&++#,+6' $'(' ' $--' ,&+2&!"+' +1@>&!"' "#' +1!)' $'(' ")&' - :&' 5,#4 + #'+

*D2#' .' 3' +23/ H]aE' 3' OD' *D2#' .' ("/ E3' ("I/H"

' '(' @&' "' 81,")&,' &'$!"&(')$"' ")&' +$ (' 3&$'&,?' #8' ' ' +)$--6' 8,#%' $'(' $8"&,' ")&' '&9"' 4# ($'!&' ")&,&#86' @&' 1' "&(' "#' $'(')&-(' "#.&")&,' * ")' ")&' 3&$'&,?' #8' ' > +#' ' $'(' ")$"' ")&' ")&' 3&$"' #8' ")&' $")&(,$-' #8' ' > +#' ' ")&' ,!)(#!&+&' #8' ' " ' +)$--6' $'(')' +' 1!!&++#,' 8#,' &4&,' +)$--' @&' $'(' @&!#%&6' @?' 4 ,"1&' #8' ") +' !"6' $'(' * ")#1"' 81,")&,' H,$'"6' '+"$--$" #'6

$ $ B ' ' (2C V

'+"$--$" #'6 -&!" #'6 #,' #")&,' &,&%#'? *)$"+#&4&,6 3&$'' $'(
3&$'+' #8 ' ' 8#,' &4&,6 $'(')$4& $'(' &9&,! +& $-' $'(
&4&,?")& .)"+6 5, 4 -&.&+6 R1, +(!" #'6 $'(' 1")#, "? $22&,"$ ' ' .
"#")& +$ (' 3&$'&,? #8 # ' ')&,&"#8#,& -$*81--?)$(6 1+&(6
$'(' &'>#?&(' @? ")& 3&$'+' ")&,&#8]' 5,#4 (&(' '&4&,")7&++6 ")$" $-' +23/ #24D' .
$'(' &4&,? ")& !!-&+ $+" !$-' 5$",#'$.& '' $22# '" '.' #,' 2,&+&'" '.'"#
&'&8 !&+' '#*' @&-#'. '.6 '') +' +#-& $'(' +&2$,$"& .)"6 "#")& 3&$'
#8 ' ' +)$--6 8,#%' $'(' $8"&,' ")& '&9" 4# ($'!& #8 +1!)' /H"O E" C
3&$'&,?6 4&+" '' $'(' @& &9&,! +&(' @? ")& ,!)@ +)#2' #8 ' " '$'(' .'*IO7#
)+' 1!!&++#,+' 8#,' &4&,

' '(' *)&,&$+' $'' !" *$+' 2$++&(' '' ")& 5$,- $%&'" #8 ' = 323 #' .'
'' ")& #,"&")' &$,' #8 ")& & .'' #8 +' $>&+"? D '.' ' /H"O E" CE'
")&),(6 '" "1-&(' ' ' ' ' ' ' " '$ ' ' ' 5$,18%&'"
' ' 5 * ' ' ' ** ' ' ' ' ' < '
0 *' ' '> ' ' ,&-$'(6 ' " ' ** ' ' ' ' '
'> * -' $'(' ")& +$ (' !" #8 ")& 5$,- $%&'" #8 ' *$+'
'!#,2#,$"&(' '"# $'(' %$(& 5$," #8 $" !" 2$++&(' '' ")& 5$,- $%&'"
. ' '' ")& +$%& &$,6 '" "1-&(' ' ' ' ' < ' :C IZQ H '
H,&$" , "$ '' ' ,&-$'(' ' $'(' @? 8#,!& #8 ")& +$ (' *# !"+' ")& 7B
.)" #8 + "" '.' '' ")& #1+& #8 #,(+' #8 ")& V' "&(' 5$,- $%&'"6
$+' @&"*&&'' ")& #,(+' 2 , "1$-' #8 ' +"$'(+' ,&.1-$"&(' $!!#,('.'
"# $!&,"$ '' #"$" #'' @? ")& +$ (' !"+' $22# '"&(' "# "$:& 2-$!& $%#'.'
")& ,!) &2 +!#2$-' &&+6 8,#%' &++ #'' "# &++ #'6 $'(' $!!#,('.' "#
$'#")&,' - :& #"$" #'' $22# '"&(' "# "$:& 2-$!& $%#'.' ")& 2 +!#2$-'
&&+] '(' *)&,&$+' ")& '$!"%&'"+')&,& 'B@&8#,& %$(& 8#,' ,&(1! '.'
")& 1%@&,' #8 ")& ,!) &2 +!#2$-' &&+' '' ' $'(' 8#,' ")&
V' #'' #8 !&,"$ '' #8 ")& 2 +!#2$-' &&+6 ,&'(&,' " '&!&++$,? "# %$:&
5,#4 + #'' +# $+' "# $!!#%%#($"& ")& +$ (' #"$" #'' "# +1!)' '$!"N
%&'"+' ' @& " ")&,&8#,& &'$!"&(')$" *)&'' $'(' $+' ")& '#*' ,!) N
&2 +!#2$-' &&+' #8 '$'(' 5 *' +)$--' +&4&,$--? @&!#%& 4# (6 ")&?
$'(' &$!)' #8 ")&%' ,&+2&!" 4&-? +)$--' ")&'!&8#,")' !&$+& "# @& '!-1(&('
'' ")& #"$" #'' @? ")& +$ (' !"+' &+"$@- +)&(' $%#'.+" ")& ,!) &2 +N
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&+"$@- +)&(' "# @& #@+&,4&(' $%#'.+" ")& 2 +!#2$-' &&+6 $'(' ")&,& ''
"$:& 2-$!& '&9" @&8#,& ")& 2 +!#2$-' && -$+" '' ")& ,(&,' #8 #"$" #''
#8 ")& 2 +!#2$-' &&+' ")& +)#2+' *)&,&#8 %$?)$4& +$" '' 5$,- $N
%&'" 8#,' ")& &++ #'' -$+" 2,&4 #1+' $'(' ")& #"$" #'' @? ")& +$ ('
!"+' $22# '"&(' "# "$:& 2-$!& $%#'.+" ")& ,!) &2 +!#2$-' &&+' +)$--6
'' !$+& #8 &$!)' +1!)' 4# ($'!& $+' $8#,&+$ (6 2,#!&&("# ")& ,!)@ +)#2
*)#+& && +' '&9" '' #"$" #'' "# ")& ,!) &2 +!#2$-' && @&!#% '.'
4# (' $+' $8#,&+$ (

' '(' @& "81,")&,' &'$!"&(6)$" '' ")& $+& #8 ")& +)#2, !:' = 323 #' .'
#8 / ' '#*' 4# (6 $'(' '' ")& $+& #8 &$!)' $'(' + '.1-$,' #8 ")& E" CE'
#")&,' +)#2, !:+' '$%&(' '' ")& ,+" #-1%'' #8 ")& !)&(1-& "#
") +' !" $''&9&(6 *)&'' $'(' $+' ")&? +)$--' @&!#%& ,&+2&!" 4&-? 4# (6
#,' 1' "&(' "# $'? #")&,' +)#2, !:6 ")& #"$" #'' @? ")& +$ (' ,&! "&('
!"+' $22# '"&(' "# "$:& 2-$!& $%#'.' ")& 2 +!#2$-' &&+' +)$--' 2,#!&&('
"# ")& +)#2 *)#+& && +' '&9" #"$" #'' "# ")& +$ (' && #8
/ ' #,' #")&,' && @& '.' #,' @&!#% '.' 4# (6 #,' 1' "&(' "# $'?
#")&,' +)#2, !:' $+' $8#,&+$ (' $'(' +1!)' && #8 / ' #,' #")&,'
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2F #4 .
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&+"$@- +)&(+)$-- ,&%$ ' 1'!)$'.&(6 @1" +1@>&!" $-*$?+ "#")& &.1-$N
"#' ")&,&@? %$(& ' !$+& $'? 2, "1$- #,(+)#1-(@& $ &%2#,$-
5&&, #8 ")& V' "&(D '.(#%6 #, @& '. $ &%2#,$- 5&&, #8")$" 5$,"
#8")& V' "&(D '.(#% !$--&(+)#1-(@& !)#+&' @? ")& #,(+
&%2#,$- "# @& #'& #8 ")& &2,&+&'"$" 4&+ ")& #,(+ &%2#,$-

=DFD#IDE .
/O24" 2#G
*D//6 /D^
GIHDG

< '(*)&,&$+ ")& &4&'1&+ #8")& ,!)@ +@#2, !: #8 *
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* ")#1" $88&!" '. ")&>1+" $'(!#%2&"&'" 122#," #8")& +$ (3 . ' " &+6
$ 5#," #' ")&,&# 8 %$? @& @&'&8 ! $--? $22- &(8#, ")& #")&, 51,2#+&+ #8
")& +"$@- +)&( )1,!) ' ' %$''&,)&,& ,-B$8"&, %&'" #'&(
@& " ")&,&8#,& 81,")&, &'$!"&( )$" *)&' $'(+# +##' $+ ")& +$ (
,!)@ +@#2, !: #8 * +)$-- @&!#%& 4# (6 ")& 1!!&++#, ")&,&"#6
$'( ) + 1!!&++#,+ 8#, &4&, ,!)@ +)#2+ #8 * +)$--6 8,#% $'(
#1" #8 ")& &4&'1&+ #8")& +$ (,!)@ +@#2, !:6 2$? #4&, "# ")& +$ (
#%% ++ #'&,+ 1'(&, ") + !" ")& $''1$- 1% #8 5#1, ")#1+$'($'(
8 4&)1'(,&(5#1'(+6 ")& +$%& "# @& 2$ (@? *# &Ch1$- 5$?%&'"+ #'
&$!) ,+" 3$? #8& $'(,+" 3$? #8& ' &4&,? &$,6 ")&
8 ,+" 5$?%&'" '/ %#1'" #8 +1!) $''1$- $9 "# @& %$(& #' ")& ,+"
3$? & ' ' ,+" 3$? #8& $+ %$?)$22&'6 $8"&, ")& 8 ,+")$-8B
?&$,-? 5$?%&'" #8 ")& &4&'1& #8 +1!) ,!)@ +)#2, !: #8 *
+)$--)$4& @&!#%& (1& $'(2$?$@-& "# +1!) 1!!&++#, #8")& '#* ,!)N
@ +)#2 * - $'(")$" ")& '#* +)#2 ')$4 '. 8,&&-?
$++&'"&(")&,&1'"#6 +)$--6 8,#% $'(#1" #8 ")& &4&'1&+ #8 ")& +$ (
+)#2, !:6 2$? #4&, "# ")& +$ (#%% ++ #'&,+ 1'(&, ") + !" ")&
$''1$- 1% #8 #1, ")#1+$'($'(#'&)1'(,&(&'(+ 9"? 5#1'(+ ' $'(
*)&' $'(+# +##' $+ ")& +$ (+)#2, !: #8 ' +)$-- @&!#%& 4# (6
")& 1!!&++#, ")&,&"#6 $'( ) + 1!!&++#,+ 8#, &4&, +)#2+ #8 '
+)$--6 8,#% $'(#1" #8 ")& &4&'1&+ #8 ")& +$ (+)#2, !:6 2$? #4&,
"# ")& +$ (#%% ++ #'&,+ 1'(&, ") + !" ")& $''1$- 1% 28 9
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*# &C1$- 5$?%&'"+ #' &$!) ,+" 3$? #8 & $'(,+" 3$? #8
& ' &4&,? &$,6 ")& 8 ,+" 5$?%&'" ")&,&#8 "# @& %$(& #' ")&
,+" 3$? #8 & ' ")& &$, '& ")#1+$'( )1'(,&($'(
") ,"?B8#1, $'(")& 1%+ +# 8,#% %& "# %& "# @& 2$ ("# ")&
+$ (#%% ++ #'&,+ @? ")& +$ (,!)@ +)#2+ #8 * $'(+)#2+
#8 ' +)$-- @& $22- &("# +1!) $'(")& - :& 51,2#+&+ $+ ")& 5,#N
!&&(+ #8 +$ ($9)&,&@? 4&+"&(>' ")& +$ (#%% ++ #'&,+ $'(")&
&4&'1& #8 +1!) +)#2, !:+ +# "# @& 1' "&(* ") #")&, +)#2, !:+6
$'(1'(&, - :& 1-&+ $'(&.1-$"#'+

E" CE .
*D//6 2#G
/O24" D&^
DOC3DG ./ O
2##I27 2&
/DECDH3 .
IOE C2 G O6
3"DO

< 5,#4 (&($-*$?+6 $'(@& " &'$!"&( )$" ")& '#* +)#2 #8
' $'( ) + 1!!&++#,6 $'(")& 1!!&++#,+ #8 ")& '#* ,!)@ +)#2
#8 * +)$-- '#" @& - $@-&6 ' ,&+2&!" #8 ")& +$ (1%+ +# @? ")&%
"# @& ,&+2&!" 4&-? 2$ ("# ")& +$ (#%% ++ #'&,+6 "# @& ,$"&(6 "$9&(6
#, $++&++&(' #, "# ")& $''1$- $9)&,& 'B@&8#,& $22# '"&("# @&
%2#+&(#, -&4 &($'?") '.)&,& 'B@&8#,& !#'"$ '&("# ")& !#'",$,?
'#"* ")+"$'('.

< ' (

$ $ B ʿ ʿ (2C V

< ʿ '(ʿ @&ʿ "ʿ &'$!"&(ɞ)$"ʿ 8ʿ$"ʿ $'?ʿ %&ʿ ")&ʿ +$ (ʿ 1%+ʿ)&,&@?ʿ (,&!"&(ʿ "#ʿ @&ʿ 2$ (ʿ @?ʿ ")&ʿ +$ (ʿ ,!)@ +)#2ʿ #,ʿ +)#2ʿ +)$--ʿ @&ʿ "ʿ $,,&$,ʿ $'(ʿ 1'2$ (ʿ 8#,ʿ 9ʿ #'")+ʿ '&9"ʿ $8"&,ʿ ")&ʿ +$%&ʿ +)$--ʿ)$4&ʿ @&!#%&ʿ (1&ʿ $'(ʿ 2$?$@-&ʿ $+ʿ $8#,&+$ (ɞ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ "#ʿ ,&!#4&,ʿ ")&ʿ +$%&ʿ @?ʿ 5,#!&++ʿ #8ʿ &C1&+",$" #'ɞ "#ʿ @&ʿ $22- &(ʿ 8#,ʿ $'(ʿ ++1&(ʿ "ʿ - :&ʿ $''&,ʿ $+ʿ)&,& "ʿ @&8#,&ʿ (,&!"&(ʿ "ʿ !$+&ʿ $'?ʿ ,!)@ +)#2ʿ #,ʿ +)#2ʿ +)$--ʿ 8$-ʿ "#ʿ %$:&ʿ 5$?%&'"ʿ #8ʿ ")&ʿ $''1$-ʿ $"&ɞ $9ɞ #,ʿ ++&++%&'"ʿ @?ʿ ") +ʿ !"ʿ $1")#, L&(ʿ "#ʿ @&ʿ %2#+&(ʿ $'(ʿ -&4 &(ɞ $'(ʿ +1@>&!"ʿ "ʿ $--ʿ ,&+2&!"+ʿ "#ʿ +1!)ʿ $'(ʿ ")&ʿ - :&ʿ 5,#4 + #'+

(0 0 EE #ʿ D/Eʿ 02ɞ /Dʿ ,,&$,+ʿ ", #'ʿ ʿ

< ʿ '(ʿ @&ʿ "ʿ &'$!"&(ɞ)$"ʿ *) -&ʿ $'(ʿ +#ʿ -#' .ʿ $+ʿ ")&ʿ &%2#Bʿ ,$- "&+ʿ #8ʿ ")&ʿ +$ (ʿ ,!)@ +)#2, !:ʿ $'(ʿ +)#2, !:ʿ ,&+2&!" 4&-?ʿ +)$--ʿ $"ʿ $'?ʿ %&ʿ @&ʿ "ʿ ")&ʿ 1+"#(?ʿ #8ʿ +ʿ %#+"ʿ 9!&--&'"ʿ $>&+"?ɞ +ʿ &,+ʿ $'(ʿ 1!!&++#,+ɞ ")&ʿ +$ (ʿ $''1$-ʿ 5$?%&'"+ʿ +)$--ʿ @&ʿ %$(&ʿ "#ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ "ʿ - :&ʿ $''&,ʿ $+ʿ ")&ʿ +$%&ʿ $,&ʿ)&,&@?ʿ (,&!"&(ʿ "#ʿ @&ʿ %$(&ʿ @?ʿ ")&ʿ ,!)@ +)#2ʿ #,ʿ +)#2ʿ ")&,&#8ʿ ,&+2&!" 4&-?ʿ *) -&ʿ ")&ʿ +$ (ʿ &&+ʿ $,&ʿ 81--

+26 0 D#3Eʿ "# @& 0 2GDʿ +&&+f7A

< ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ $--ʿ $'(ʿ &4&,?ʿ 1%ʿ $'(ʿ 1%+ʿ #8ʿ #'&?ʿ (1&ʿ $'(ʿ 2$?$@-&ʿ $"ʿ ")&ʿ 2$++ '.ʿ #8ʿ ") +ʿ !"ʿ @?ʿ $'?ʿ ,!)(&$!#'ɞ 3&$'ɞ 5,&@&'($,?ɞ $+"&,ɞ E$,(&'ɞ '!1%@&'"ɞ 5&,N 2&"1$-ʿ 1,$"&ɞ 5$,+#'ɞ < !$,ɞ #,ʿ #")&,ʿ 2 , "1$-ʿ 5&,+#'ɞ @?ʿ *)$"&4&,ʿ $%&ʿ !$--&(ɞ :'#*'ɞ #,ʿ (&+!, @&(ɞ #'ʿ $!!#1'"ʿ #8ʿ ,+"ʿ ,1 "+ʿ $'(ʿ ,,&$,+ʿ ")&,&#8ɞ $'(ʿ $'?ʿ 1%ʿ #,ʿ 1%+ʿ $"ʿ $'?ʿ %&ʿ)&,&"#8#,&ʿ -&'"ʿ $'(ʿ $(4$'!&(ʿ @?ɞ $'(ʿ '#*ʿ 2$?$@-&ʿ #,ʿ)&,&$8"&,ʿ "#ʿ @&!#%&ʿ 2$?$@-&ɞ 21,+1$'"ʿ "#ʿ ")&ʿ $*+ʿ "ʿ 8#,!&ʿ "ʿ "#ʿ ")&ʿ ,1+"&&+ʿ $'(ʿ #%N % ++ #'&,+ʿ #8ʿ ")&ʿ ,+"ʿ ,1 "+ʿ "ʿ 8#,ʿ 21,!)$+ '.ɞ @1 -('.ɞ ,&N @1 -('.ɞ %2,#4 '.ɞ ,&2$, '.ɞ #,ʿ &'-$,. '.ʿ H-&@&ʿ #,ʿ #")&,ʿ #1+&+ʿ #,ʿ 88 !&+ɞ +)$--ɞ 8,#%ʿ $'(ʿ $8"&,ʿ ")&ʿ 2$++ '.ʿ #8ʿ ") +ʿ !"ɞ @&ʿ $'(ʿ ")&ʿ +$%&ʿ $'(ʿ &4&,?ʿ 5$,"ʿ ")&,&#8ʿ $,&ʿ)&,&@?ʿ 4&+"&(ʿ "ʿ $'(ʿ ",$'+8&,,&(ʿ $'(ʿ %$(&ʿ 2$?$@-&ʿ "#ʿ ")&ʿ #%% ++ #'&,+ʿ 1'(&,ʿ ") +ʿ !"ɞ $'(ʿ ")&ʿ 1!!&++#,+ɞ "#ʿ @&ʿ @?ʿ ")&%ʿ $22- &(ʿ $'(ʿ (+2#+&(ʿ #8ʿ "#ɞ 8#,ɞ $'(ʿ 12#'ʿ ")&ʿ 51,N 2#+&+ʿ #8ʿ ") +ʿ !"ʿ)&,&$8"&,ʿ %&'"#'&(ɞ $'(ʿ +1@>&!"ʿ "#ʿ ")&ʿ - :&ʿ 1-&+ʿ $'(ʿ &.1-$"#'+ʿ $+ʿ $,&ʿ)&,& "ʿ %&'"#'&(ɞ $+ʿ "#ʿ ")&ʿ 5,#!&&(+ʿ #8ʿ ")&ʿ +$ (ʿ $''1$-ʿ $9ʿ)&,&@?ʿ 4&+"&(ʿ "ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+

I 0Eʿ # Zʿ GIDʿ 3ʿ /IEʿ 3/DDEʿ .ʿA /E3ʿ A/I 3Eʿ # HD/32 #ʿ H^ H I#3Eʿ FDE3DGʿ #ʿ (0 0 E^ E #D/Eʿ "D/D .

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ $--ʿ $'(ʿ &4&,?ʿ ")&ʿ 1%+ʿ #8ʿ #'&?ʿ +#ʿ $!"1$--?ʿ (1&ʿ #"ʿ $!!#1'"ʿ #8ʿ ,+"ʿ ,1 "+ʿ $'(ʿ ,,&$,+ʿ ")&,&#8ɞ $'(ʿ $--ʿ $'(ʿ &4&,?ʿ 1%ʿ $'(ʿ 1%+ʿ +#ʿ -&'"ʿ $'(ʿ $(4$'!&(ʿ $+ʿ $8#,&+$ (ʿ 8#,ʿ @1 -('.ɞ ,&@1 -('.ɞ %2,#4 '.ɞ &'-$,. '.ɞ #,ʿ ,&2$, '.ʿ H-&@&ʿ #,ʿ #")&,ʿ #1+&+ʿ $'(ʿ 88 !&+ɞ $'(ʿ *) !)ʿ $,&ʿ #,ʿ +)$--ʿ @&!#%&ʿ (1&ʿ $'(ʿ 2$?$@-&ʿ $+ʿ $8#,&+$ (ɞ $'(ʿ $--ʿ $'(ʿ &4&,?ʿ 1%ʿ #,ʿ 1%+ʿ #8ʿ #'&?ʿ (1&ʿ #,ʿ "#ʿ @&!#%&ʿ (1&ʿ #'ʿ $'?ʿ !!#1'"ʿ *)$"&4&,ʿ "#ʿ ")&ʿ +$ (ʿ ,1+"&&+ʿ $'(ʿ #%% ++ #'&,+ʿ #8ʿ ,+"ʿ ,1 "+ʿ "ʿ #")&,ʿ ")$'ʿ ")&ʿ 1%+ʿ @?ʿ ") +ʿ !"ʿ ,&% "&(ɞ +)$--ʿ $'(ʿ ")&ʿ +$%&ʿ @&ʿ +1!)ʿ 8#,ʿ $'(ʿ 1+&ʿ "ʿ -&4 &(ɞ @?ʿ #,ʿ 1'(&,ʿ ")&ʿ 3 ,&!"#'+ʿ #8ʿ ")&ʿ #%% ++ #'&,+ʿ #8ʿ ") +ʿ !"ʿ $'(ʿ ")&ʿ 1!!&++#,+ɞ $'(ʿ "ʿ +)$--ʿ @&ʿ 5$?%&'"ʿ ")&ʿ +$%&ʿ E$?+ɞ &$'+ɞ &%&(&+ɞ $'(ʿ 5,#!&++&+ɞ $'(ʿ $"ʿ ")&ʿ %&+ɞ $+ʿ ")&ʿ +$%&ʿ % .)"ʿ)$4&ʿ @&&'ʿ ,&+2&!" 4&-?ʿ +1&(ʿ 8#,ʿ $'(ʿ ,&!#4&,&(ʿ $'(ʿ -&4 &(ʿ @?ʿ #,ʿ 8#,ʿ ")&ʿ +$ (ʿ ,1+"&&+ʿ $'(ʿ #%% ++ #'&,+ʿ #8ʿ ,+"ʿ ,1 "+ʿ "ʿ 8ʿ ") +ʿ !"ʿ)$(ʿ '#"ʿ @&&'ʿ 2$++&(ʿ ʿ $'(ʿ ")$"ʿ $--ʿ $'(ʿ &4&,?ʿ +1!)ʿ $,,&$,+ʿ $'(ʿ %$(&ʿ 5#*&,ʿ $'(ʿ $1")#, "?ʿ *)$"&4&,ʿ $'(ʿ *)&,&4&,ʿ "#ʿ +1&ʿ $'(ʿ ,&!#4&,ʿ ")&ʿ +$%&ʿ)&,&@?ʿ 4&+"&(ʿ $'(ʿ 5$?%&'"ʿ #8ʿ 5$,*$,4 +ʿ %2,#4&%&'"ʿ $'(ʿ *$?+ɞ 8#,ʿ ")&ʿ #,(&,ʿ ")&ʿ +$%&ʿ *$+ʿ "ʿ @&ʿ $2@-&ʿ #,ʿ 2,#*&(ʿ $'(ʿ ")&ʿ 8#,ʿ ") +ʿ !"ʿ @?ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ #8ʿ ,+"ʿ ,1 "+ʿ +)$--ʿ @&ʿ ")&ʿ $% .%ɞ #'"#"ʿ $'(ʿ ")&ʿ 5,#!&&(+ʿ #8ʿ ")&ʿ +$ (ʿ ,1+"&&+ʿ $,&ʿ 8,#%ʿ ")&ʿ +$%&ʿ $'(ʿ ,&%$ 'ʿ ,&+"&(ʿ ?ʿ ")&%ʿ 8#,ʿ ")&ʿ 1+&+ʿ @?ʿ ") +ʿ !"ʿ #,ʿ @?ʿ $'?ʿ #")&,ʿ %&$'+ʿ ,&+2&!" 4&-?

:ʿ Vʿ &!#4&,?

I 0Eʿ E ʿ GIDʿ 0E ɞ 0Dʿ E I DGʿ 0 6E2 G /I Eʿ 3DDEʿ #ʿ) 2 0 Dʿ .ʿ2#Gʿ 0ɞ (0 0 EE #ʿ

V L' ' L' B ' ' (2C

&!#4&,?' ")&,&#8' ,&+2&!" 4&-?6' +)$--6' 1'" -' $--' $'(' &4&,?' +1!)' 1%'
$'(' 1%+' +)$--' @&' ,&!#4&,&(' $'(' 2$ (' $+' $8#,&+$ (6' !#'" '1&' $'(' @&'
'' 81--' #,!&' $'(' 8 &!"' $+' 8' ")&' +$%&' *&,&')&,& '' ,&B&'$!"&(6' $'('
$+' 8' ")&' #%% ++ #'&,+' #8' ") +' !'')$(' @&&'' '$%&(' '' &4&,?' +1!)'
!'' #,' X?"+6 6#,' '' $'?' #'(' #,' #'(+' #,' #")&,' &!1, "&+' ")&,& '' ,&N
+2&!" 4&-?' %&'" #'&(6' $'(' '' 21,+1$'!&' ")&,&#8' ,&+2&!" 4&-?' &9&!1"&('
$'(' &'"&,&(' '"#6' '+"&$(' #8' ")&' ,1+"&&+' $'(' #%% ++ #'&,+' #8' ")&'
,+'' ,1 "+' '' ,

B # DE' # Z'
#' > 2#GE' .'
E2 G' / I E3DDE'
/' ' .. HD/E'
FDE3DG' #
(O O EE #^
D/E

' '(' @&' '' 81,")&,' &'$!"&(')$'' $--' $'(' 6&4&,?' 1%' $'('
1,$+' #8' #'&?' $'(' 5,#2&,"?' #8' &4&,?' D '(' $'(' 3&+!, 2" #'6' $'('
&!1, "&+' 8#,' #'&?6' @&-#'. '.'"#' $'('#*' '' ")&' $'(+' #,' 5#++&++ #''
#8' #,' $'' ")&' 3 +2#+$-' #8' ")&' ,1+"&&+' $'(' #%% ++ #'&,+' #8' ,+''
,1 "+' '' ' #,' $'?' #8' ")&,' 88 !&,+6' #'' $!!#1'' #8' ")&' ,+''
,1 "+6' #,' #'' $!!#1'' #8' $'?' H 8"6' H,$'"6' #,' #$'' 8,#%' ")&' #%% + '
+ #'&,+' #8' ")&' ,&$+1,?' '' 21,+1$'!&' #8' $'?' !'' #8' 5$,- $%&'')&,&N
"#8#,&' %$(&6' #,' #'' $'?' #")&,' !!#1'"6' +)$--6' 8,#%' $'(' $8"&,' ")&' 2$++ '.'
#8' ") +' !"6' @&' 8#,") * ")6' $'(' ")&' +$%&' $'(' &4&,?' #8' ")&%' $,&')&,&@?'
(,&!"&(' "#' @&' 2$ (' #4&,' $'(' ",$'+8&,,&(' "#6' $'(' $,&')&,&@?' "#' $--'
'"&'"+' $'(' 51,2#+&+' 4&+"&(' '6' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !''
$'(' ")&,' 1!!&++#,+' 8#,' &4&,6' +1@>&!'' '&4&,")&-&++6' '' ")&' 8 ,+'' 2-$!&6'
"#' $--' H,$'"+' $'(' +1@+ +" '.' #'",$!"+' %$(&' @?' ")&' +$ (' #$,(' #8'
,+'' ,1 "+' @&8#,&' ")&' 2$++ '.' #8' ") +' !"6' "#' @&' @?' ")&%' $22- &(' $'('
(+2#+&(' #8' "#' $'(' 8#,' ")&' +&4&,$-' 51,2#+&+' #8' ") +' !'' $+')&,& 'B$8"&,'
%&'" #'&(6' $'(' +1@>&!'' "#' ")&' - :&' 1-&+' $'(' &.1-$" #'+' $+')&,&$8"&,'
%&'" #'&(' * ")' ,&+2&!'' "#' ")&' +$ (' $''1$-' $9')&,&@?' 4&+"&(' '' ")&'
+$ (' #%% ++ #'&,+

+/ O 23D I 7'
3D/&' 2#G'
= O #E #&'
("2/ 3 DE' 3 '
OD' / DE3DG' #'
(O O EE #^
D/E!' 2#G'] DC3'
G E3 #H3

' '(' *)&,&$+' ")&' +&4&,$-' 1%+' ,&+2&!" 4&-?' @&C1&$")&(' @?'
3#!"#,') '(' ' $'(' 3#!"#,' + ' " ' 8#,%&,-?' #,('
,!)@ +)#2+' #8' * ' "#*$,(+' @1? '.' #8' H-&@&+' $'(' $1.%&'" '.'
2##,' 4 '.+' '' ' *&,&' $'(' $,&' 4&+"&(' '' ")&' +$ (' ,1+"&&+' $'('
#%% ++ #'&,+' #8' ,+'' ,1 "+' '' ' 8#,' ")&' 51,2#+&+' $8#,&+$ ('
@&' '' ")&,&8#,&' &'$!"&(')$'' ")&' +$%&' $'(' $--' ")&' 5,#!&&(+' ")&,&#87' #,'
+#' %1!)' ")&,&#8' $+' ,&%$ '+' 1'$22- &(' "#' ")&' $8#,&+$ (' 51,2#+&6' $'('
")&' 1'(+6' 5$,- $%&'"$,?' #,' #")&,* +&' $'(+6' +"$"&+6' $'(' #,".$.&+'
#,' #")&,' &!1, "&+' *)&,& '' ")&' +$%&' #,' $'?' 5$,'' ")&,&#8')$4&' @&&''
-$ (' #1'' #,' '4&+"&(' +)$--' @&' $'(' ")&' +$%&' $,&')&,&@?' ",$'+8&,,&(' "#6'
4&+"&(' '6' $'(' %$(&' 2$?$@-&' "#' ")&' #%% ++ #'&,+' 1'(&,' ") +' !''
$22#'"&(6' $'(' ")&' 1!!&++#,+' 8#,' &4&,6' "#' @&' @?' ")&%' :&2'' (+" '!''
8,#%' $--' #")&,' 1'(+6' $'(' $22- &(' $'(' (+2#+&(' #86' %%&($"&-?' 8,#%'
$'(' $8"&,' ")&' 2$++ '.' #8' ") +' !"6' "#*$,(+' ")&' 5$?%&'' #8' +1!)' $''1$-'
$-$, &+6' +$4&' $+')&,& 'B$8"&,' &9!&2"&(6' $+' %$?')$4&' @&&'')&,&"#8#,&'
-$*81--?' .,$'"&(' @?' ")&' +$ (' ,1+"&&+' $'(' #%% ++ #'&,+' #8' ,+''
,1 "+' "#' $'?' '!1%@&'"6' 1,$"&6' #,' ' +"&,' 8#,' ")&' 1.%&'"$" #''
#8' $'?' &'&8 !&6' 4 '.6' #,' 1,$!?6' $'(' "#*$,(+' @1? '.' #8' H-&@&+'
$'(' $1.%&'" '.' 2##,' 4 '.+' '' ' $'(' "#' '#' #")&,' 51,2#+&6'
@1'' '' ")&' $''&,' $'(' +1@>&!'' $'(' $!!#,('.' "#' ")&' &.1-$" #'+' $'('
3 ,&!" #'+')&,&$8"&,' %&'" #'&(' $'(' $22#'"&(' * ")' ,&+2&!'' "#' ")&'
#")&,' 1'(+' "#' @&' $22- &(' 8#,' +1!)' 51,2#+&6

(O O EE #'
D / E3 C I 3'
B # DE' I 3'
23' #3D/DE3

' '(' @&' '' 81,")&,' &'$!"&(')$'' ")&' +$ (' #%% ++ #'&,+
1'(&,' ") +' !'' $,&')&,&@?' $1")#, L&(' $'(' &%2#*&,&(' 8,#%'
%&6' $'' ")&' 3 +!,&" #'6' "#' -$?' #1'' $'' '"&,&+'' $--' $'?' 5$,'' #8'

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+1!)' #' &+' $+' +)$--' $"' $'?' %&')&,&$8"&,6' @?' #,' 1' (&,' ")&' 5,#4 + #'+' #8' ") +' !"6' !#%&' "#' #,' @&' '' ")&,' $'(+' #,' $"' ")&,' 3 +2#+$-6' '' ")&' 51,!)$+&' #8' H#4&,'%&'' #,' 5$,- $%&'"$,?' 1'(+6' "#!:+6' #,' &!1,"&+6' $'(' '#' #")&,6' &")&,' ''. '#,' '$'(' 8,#%' %&' "#' %&' !)$'.&6' ",$'+8&,6' #,' +&--' #1"' +1!)' "#!:+6' 1'(+6' #,' &!1,"&+6' #,' $'?' 5$,"' ")&,#86' $+' ")&?' %$?' 8'(' '&!&++$,?' #,' !#'N 4&'&'"6

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+$ (6' ''%$: '.' #,' &9&!1" '.' +1!)' &9",$#,('$,?' &2$,+6' #,' ,&@1 -('.'
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'' *) !)' +1!)')1,!)6')$2&-6' #,' #")&,' 1 -('.' %$?' @&' + "1$"&6' #, /2#G' , I/6'
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8' '' ")&' #1'"?' #8' ' " '$'' ")&' '&9' 5,&+&'" ' .' &,%6' #,' 8' '' ")&' "?' #8' ' " ' $' ")&' '&9' T1$,"&,' &++ #'+' 8#,' ")&' +$ (' "?6' @?' &9) @ " ' .' "#' ")&' R1(.&' #,' R1(.&+' #8' ++ L&6' #,' "#' ")&' #1,' #8' D ' .;+' &'!)' 8#,' ")&' +$ (' #1'"?' #8' ' " ' #,' "#' ")&' &!#,(&,' #8' ")&' "?' #8' ' " ' $' +1!)' T1$,"&,' &++ #'+6' $' 5&" " #'6' 2,$? ' .' +1!)' $" +N 8$!" #'' $'(' %&'(+' $+' $8#,&+$ (6' $'(' ")&,& '' +&"" ' .' 8#,")' 2$," !1-$,-?' ")&' '>1,?' #,' 3$%$.&' (#'&' #,' &#%% ""&(6' $'(' ")&' 2$," !1-$,' %#1'' $'(' $"1,&' ")&,&#8' @?' *)$' 1%@&,' #8' 5&,+#'+' +1!)' '>1,?' #,' 3$%$.&' *$+' (#'&' #,' !#%% ""&(6' $'(' ")&' $%&+' #,' 3&+!, 2" #'+' #8' +1!)' 88&'(&,+6' +#' 8$,' $+' ")&' +$%&' +)$--' @&' : '#*'' "#' ")&' 5&" " #'&,+' > $'(' ")&' $""&,' #8' +1!)' 5&" " #'' +)$--' @&' 'C1 ,&(' '"#' @?' +1!)' R1(.&' #,' R1(.&+' #8' ++ L&6' #,' #1,' #8' D ' .;+' &'!)6' #,' &!#,(&,6' '' #2&'' #1,"6' '' ")&' 5,&+&'!&' #8' ")&' H,$'(' R1,?' %2$''&--&(' $'(' +*#,'' $" +1!)' ++ L&+' #,' 5,&+&'" ' .' &,%' #,' &++ #'+6' #'' ")&' $")' #8' +1!)' 5&,+#'' #,' 5&,+#'+' $+' %$?' @&' 2,#(1!&(' "#' "&+" 8?' $Z"#' ")&' +$%&' $'(' 8' #'' #'+ (&,$" #'' #8' ")&' R<8$""&,' +V!)' R1(.&' #,' R1(.&+' #8' ++ L&6' '/ &!#,(&,6' +)$--' @&' #8' #2 ' #'' ")$' +1!)' 3&%#- " #'6' 1,' ' .6' , ' .6' #,' #")&,' '>1,?' #,' 3$%$.&' E$+' E$'"#'-?' '/ %$- ! #1+-?' (#'&6' +1!)' R1(.&' #,' R1(.&+' +)$--' 'C1 ,&' '"#' ")&' %#1'' #8' +1!)' '>1,?' #,' 3$%$.&' (#'&' #,' !#%% ""&(' $+' $8#,&+$ (' $'(' ")&' +$ (' H,$'(' R1,?' +)$--' ")&,&12#'6' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' 21,+1$'' "#' ")&' 3 ,&!N " #'+' #8' +1!)' R1(.&' #,' R1(.&+6' #1,' #8' D ' .;+' &'!)6' #,' &!#,(&,' $+' $8#,&+$ (6' "#' 2,&+&'' +1!)' 1%' #,' 1%+' #8' #'&?' $+' +)$--' $22&$,' "#' @&' ")&' %#1'' #8' (&' %1,?' #,' 3$%$.&' !#%% ""&(' $+' $8#,&N +$ (' "#' @&' ,$ +&(' &")&,' #'' ")&' #1'"?6' #1'"?' #8' $' "?' #,' #*'6' $,#'?6' #*''#,' #*'+6' 5$, +)' '/ 5$, +)&+6' '' #,' '&$,' *) !)' +1!)' 88&'!&' +)$--')$4&' @&&'' !#%% ""&(6' $'(' '' +V!)' 5,#2#," #'+' $+' ")&?' +)$--' ") ' :' 8 " ' *) !)' V%' #,' 1%+' +#' 2,&+&'"&(' $+' $8#,&+$ (' +)$--' @&' $22-#""&(6' -&4 &(6' $'(' ,$ +&(' @?' +1!)' E$?+' $'(' &$'+' $'(' '' +1!)' #,%' #,' $''&,' $+' #")&,' 21@- !' #'&?' 2,&+&'"&(' $"' ")&' +$ (' ++ L&+6' #,' 5,&+&'" ' .' &,%6' #,' &++ #'+' $'(' +1!)' #' &+' +)$--' @&' 2$ ('"#' ")&' +$ (' #%% ++ #'&,+6' #,' "#' " &' 5&,+#'' #,' 5&,+#'+' @?' ")&%' (&21"&(' $+' $8#,&+$ (6' $'(' @&' @?' +1!)' #%% ++ #'&,+' $22- &(' "#' ,&@1 -(' #,' ,&2$,' +1!)')1,!)6')$2&-6' #,' #")&,' 1-(' ' .6' $'(' @&' 8#,' +1!)' 51,2#+&' &92&'(&(' @?' +1!)' 5&,+#'' #,' 5&,+#'+' '' +1!)' $''&,' $'(' +1@>&!"' "&' +1!)' &.1-$" #'+' $'(' &!1,' "?' 8#,' ")&' (1&' 22- !$" #'' ")&,&#8' $+'

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@?' ")&%' (&21"&(' $+' $8#,&+$ (6' #,' ")&' &!"#,6' 1,$"&6' #,' #")&,' #88 ! B' $" ' . ' ' +"&,6' #,6' '' !$+&' #8' <$!$' !?' #8' ")&' &'&8 !&6' $'?' *#' ')$@ "$'"+' #8' ")&' 5$, +)6' * ") '') ,"?' 3$?+' $8"&,' +1!)' 88&'!&' +)$--')$4&' @&&'' !#%% ""&(6' +)$--' . 4&' #" !&' ")&,&#8' "#' ")&' .)' #'+"$@-&' #8' ")&' $,#'?' $'(' "#' ")&')1,!) *$,(&'+' #8' ")&' 5$, +)' *)&,&' +1!)' 88&'!&' +)$--')$4&' @&&'' !#%% ""&(' X 8' +1!)' .)' #'N +"$@-&' #,')1,!) *$,(&'+' +)$--' ,&+2&!" 4&-?' ,&+ (&' * ") '' +1!)' $,#'?' $'(' 5$, +) [6' *)#' $,&')&,&@?' ,&C1 ,&(' 8#,") * ")' "#' 21@- +)' ")&' +$%&' * ") '' +1!)' $,#'?' $'(' 5$, +)' $'(' 8' +1!)' .)' #'+"$@-&' #,')1,!) *$,(&'+' +)$--' '#" ,&+ (&' ")&,&'' $+' $8#,&+$ (6' ")&'' +1!)' #" !&' +)$--' @&' . 4&'' "#' +#%&' *#' ')$@ "$'"+' #8 +1!)' $,#'?' #,' 5$, +)

' '(' @&' '' 81,")&,' &'$!"&(')$"' '' $--' 5$, +)&+' $'(' 5-$!&+' *)&,&6' @?' 4 ,"1&' #8' $'?' $*6' "$"1"&6' #,' 1+"#%6' 5,#4 + #'' %$?')&,&"#8#,&')$4&' @&&'' %$(&6' @?' <&+",?' #,' #")&,' ++&++%&'"6' 8#,' ")&' $ '"&'$'!&' #8' $'?' 1,$"&6' &!"1,&,6' -&,:6' #,' #")&,' ' +"&,' #,' ++ +"$'' '' ")&' &-&@,$" #'' #8' 3 4 '&' E#,+) 26' #,' ""&'($'' #,' &9"#'6' +1!)' 5,#4 + #'' @?' <&+",?' #,' #")&,' ++&++%&'' +)$--' 8,#%' $'(' $8"&,' ")&' 2$++ '.' #8' ") +' !' *)#--?' !&$+&' $'(' (&"&,% '&' $'(' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !"6' @?' $'(' #1'' #8' ")&' 5,#!&&(+' #8' ")&' +$ (' ," '1$-' $96' $'(' ")&' #")&,' 1'(+' $+' $8#,&+$ (' @?' ") +' !' 4&+"&(' '' ")&%6' "#' 2,#4 (&' 8#,' $--' +1!)' 51,2#+&+' '' +1!)' $''&,' $'(' 5,#2#," #'+' $+' "#' ")&%' +)$--' +&&%' 8 "" '.

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< ' '(' @&' '' 81,")&,' &'$!"&(')$"' &4&,?' +1!)' '!1%@&'"6' 3&$'' $'(')$2"&,6' #,')$2"&,6' #,' #")&,' 5&,+#'' #,' 5&,+#'+' *)#' +)$--')$4&' ,&!& 4&(' 8,#%' ")&' +$ (' #%% ++ #'&,+' $'?' 1%' #,' 1%+' #8' #'&?' 8#,' $'?' #8' ")&' 51,2#+&+')&,&' 'B@&8#,&' %&'" #'&(6' +)$--6' * ") '' '&' &$,' 8,#%' ")&' &!& 2" #8' +1!)' 1%' #,' 1%+' #8' #'&?6' ,&"1,'' $'(' ",$'+%' "#' ")&' +$ (' #%% ++ #'&,+' $' 81--' "$"&N %&'" $'(' !!#1'' #8' ")&' 92&'("1,&' #8' +1!)' 1%' #,' 1%+' #8' #'&?6' $'(' +)$--6' 8' ,&C1 ,&(' @?' ")&' +$ (' #%% ++ #'&,+6' 4&, 8?' ")&' ,1")' ")&,&#8' 12#'' $")6' *) !)' $")' $'?' < !$,' H&'&,$-6' 1,#.$"&6 R1+" !&' #8' ")&' 5&$!&6' $+"&,' #,' $+"&,' 9",$#,('$,?' '')$'!&,?6' +' $'(' $,&' ,&+2&!" 4&-?')&,&@?' &%2#*&,&(' $'(' ,&C1 ,&(' "#' $(% N ' +"&,

< ' '(' @&' &'$!"&(')$"' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' +1&' 8#,' $'?' 5$," #8' $'?' 1%' #,' 1%+' #8' #'&?' .,$'"&(' 8#,' $'?' #8' ")&' 51,2#+&+' $8#,&+$ (' *) !)' %$?@&' 1'$22- &(' #,' '#" (1-?' $!!#1'"&(' 8#,' $+')&,&' (,&!"&(6' #,' $'?' 1,2-1+' ")&,&#8' $8"&,' ")&' 9&!1" #'' #8' ")&' +$ (' 51,2#+&+6' @?' 4' -' @&8#,&' ")&' ++ +"$'' $,, +"&,' #8' ")&' #1'"?' *)&,&' '' +1!)')1,!)' $'(' 5$,#!) $-)1,!)' #,' $")&(,$-' 1+&(' $+' $8#,&+$ (' '' ,&+2&!" *)&,&#8' ")&' +$%&' %$?' @&' (1&' +)$--' @&' + "1$"&6' 2,#4 (&(' ")$"' +1!)' 1%' +1&(' 8#,' @?' +1!)

*26E' 2.3D/' '..D#HD' H O ' # 33DG

#6'+/ F E #' "D/D3 . /D' O2GD' O6' DE3/6 EEDEE' OD#3' . /' B2 #3D#2#HD' .'(I/23DE!' H' E"27' HD2ED!' 2#G' (O/2 EE #' D/E' E"27' C/ ^ FGD' . /' E2OD

&CD#G 3I/D' .EIH" B #DF' &(@?7#%%)B' E #D/E'

HH I#3E' 3' .I/OE"DG'

(OO EE #' D/E' O26' EID' "#,77'#'&?' 8#6 I#' 2CC7 DG'

T ʾ ʾ ʾ ʾ ʾ B ʾ ʾ (2C

4 -ʾ --ʾ +)$--ʾ '#"ʾ &9!&&(ʾ ")&ʾ 1%ʾ #8ʾ 8"?ʾ 5#1'(+6ʾ $'(ʾ 8ʾ ")&ʾ +$%&ʾ
+)$--ʾ &9!&&(ʾ ")&ʾ 1%ʾ #8ʾ 8"?ʾ 5#1'(+6ʾ ")&'6ʾ @?ʾ !" #'ʾ 'ʾ $'?ʾ #8ʾ +ʾ
$>&+"?;+ʾ +12&, #,ʾ #1,"+ʾ 'ʾ Uʾ '(ʾ 2,#4 (&(ʾ 81,")&,6ʾ ")$"ʾ
8ʾ ")&ʾ 5&,+#'ʾ ,&"$ ' '.ʾ ")&ʾ +$%&ʾ #,ʾ '#"ʾ (1-?ʾ $!!#1'" '.ʾ +)$--ʾ @&ʾ 2#+N
+&++&(ʾ #8ʾ $>?ʾ !!-&+ $+" !$-ʾ &'&8 !&ʾ #,ʾ #")&,ʾ !!-&+ $+" !$-ʾ %#-1N
%&'"6ʾ ")&'ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+ʾ +)$--ʾ "$:&ʾ 5,#!&&('.+ʾ "#ʾ ,&!#4&,ʾ
")&ʾ +$%&ʾ @?ʾ 5,#!&++ʾ #8ʾ &C1&+",$" #'6ʾ *) !)ʾ &C1&+",$" #'ʾ +)$--ʾ @&ʾ
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2-1+ʾ #,ʾ $-$'!&6ʾ $-"&,ʾ (1&ʾ 5,#4 + #'ʾ +)$--ʾ)$4&ʾ @&&'ʾ %$(&ʾ 8#,ʾ ")&ʾ
+&4&,$-ʾ @>&!"+ʾ $'(ʾ 51,2#+&+ʾ)&,& 'B@&8#,&ʾ %&'" #'&(6ʾ $'(ʾ '#"ʾ
+##'&,6ʾ "ʾ +)$--ʾ $'(ʾ %$?ʾ @&ʾ -$*81-ʾ 8#,ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+ʾ "#ʾ
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D/Eʾ 0 26ʾ 2G^
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< ʾ '(ʾ @&ʾ "ʾ &8-$!"&(6ʾ)$"ʾ "ʾ +)$--ʾ $'(ʾ %$?ʾ @&ʾ -$*81-ʾ 8#,ʾ
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1'(ʾ $'(ʾ #' &+ʾ $"ʾ ")&,ʾ 3 +2#+$-ʾ $+ʾ $8#,&+$ (6ʾ +1!)ʾ 1%ʾ #,ʾ 1%+ʾ
$+ʾ ")&?ʾ +)$--ʾ ") ':ʾ 8 "ʾ 8#,ʾ ")&ʾ 51,2#+&ʾ #8ʾ @1 -('.ʾ)1,!)&+ʾ #,ʾ)$2&-+ʾ
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"#'ʾ 'ʾ E , " '.ʾ +)$--ʾ @&ʾ %$(&ʾ "#ʾ +1!)ʾ #%% ++ #'&,+6ʾ "),#1.)ʾ ")&ʾ
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')$@ "$'"+ʾ #8ʾ +1!)ʾ 5$, +)ʾ #,ʾ 5-$!&6ʾ $!!#%2$' &(ʾ @?ʾ $ʾ 5-$'ʾ $'(ʾ
+" %$"&ʾ #8ʾ ")&ʾ 2&'!&ʾ #8ʾ @1 -('.ʾ +1!)ʾ)1,!)ʾ #,ʾ)$2&-ʾ #8ʾ $+&6ʾ
$'(ʾ ")$"ʾ +1!)ʾ 22- !$" #'ʾ +)$--ʾ + . ' 8?ʾ ")&ʾ E -- ' . '&++ʾ #8ʾ ")&ʾ 5&,+#'+ʾ
%$: '.ʾ ")&ʾ +$%&ʾ "#ʾ !#'", @1"&ʾ #,ʾ 2,#!1,&ʾ "#ʾ @&ʾ !#'", @1"&(6ʾ 'ʾ
+1!)ʾ 5,#2#," #'+ʾ $+ʾ %$?ʾ)$4&ʾ @&&'ʾ %1"1$--?ʾ $.,&&(ʾ 12#'ʾ @?ʾ ")&%6ʾ
$ʾ 1%ʾ '#"-&++ʾ ")$"ʾ '&ʾ 8")ʾ #8ʾ ")&ʾ *)#-&ʾ 92&'!&ʾ $+ʾ +"$"&(ʾ 'ʾ +1!)ʾ
+" %$"&6ʾ 8#,ʾ ")&ʾ 51,2#+&ʾ #8ʾ @1 -('.ʾ +1!)ʾ)1,!)ʾ #,ʾ)$2&-ʾ #8ʾ
$+&ʾ $'(ʾ 2,#4 (&(ʾ 81,")&,6ʾ ")$"ʾ @&8#,&ʾ $'?ʾ (4$'!&ʾ 8#,ʾ +1!)ʾ 51,N
2#+&ʾ +)$--ʾ @&ʾ %$(&ʾ @?ʾ +$ (ʾ #%% ++ #'&,+ʾ ")&ʾ +&4&,$-ʾ 1%+ʾ +#ʾ
+1@+!, @&(ʾ #,ʾ !#'", @1"&(ʾ +)$--ʾ @&ʾ ,&+2&!" 4&-?ʾ 2$ (ʾ #,ʾ +&!1,&(ʾ "#ʾ @&ʾ
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% ++ #'&,+ʾ +)$--ʾ $22#'ʾ $'(ʾ ,&C1 ,&6ʾ $'(ʾ ")$"ʾ 8#,ʾ +1!)ʾ 51,2#+&ʾ ")&ʾ
+$ (ʾ #%% ++ #'&,+ʾ +)$--ʾ $'(ʾ ")&?ʾ $,&ʾ)&,&@?ʾ &'$@-&(ʾ "#ʾ "$:&ʾ +1!)ʾ
5&,+#'$-ʾ #,ʾ &$-ʾ &!1, "?ʾ $+ʾ "#ʾ ")&%6ʾ +)$--ʾ +&&%6ʾ 2,#2&,ʾ #,ʾ '&!&++$,?ʾ
$'(ʾ 2,#4 (&(ʾ 81,")&,6ʾ ")$"ʾ +1!)ʾ #%% ++ #'&,+ʾ %$?ʾ &%2-#?ʾ $'ʾ
,!) "&!"ʾ !)#+&'ʾ @?ʾ ")&%+&-4&+ʾ "#ʾ &9&!1"&ʾ +V!)ʾ 1 -('.6ʾ $'(ʾ +1@>&!"ʾ
"#ʾ +1!)ʾ &.1-$" #'+ʾ $+ʾ +1!)ʾ #%% ++ #'&,+ʾ +)$--ʾ ") ':ʾ 8 "ʾ $'(ʾ 2,#N
4 (&(ʾ ")$"ʾ 8ʾ +1!)ʾ 1%ʾ #,ʾ 1%+ʾ #8ʾ #'&?ʾ +)$--ʾ @&ʾ 2$ (ʾ @?ʾ '+"$-N
%&'"+6ʾ ")&ʾ -$+"ʾ '+"$-%&'"ʾ +)$--ʾ @&ʾ $"ʾ -&$+"ʾ '&ʾ #1,")ʾ 5$,"ʾ #8ʾ ")&ʾ
*)#-&ʾ 1%ʾ .,$'"&(ʾ 8#,ʾ +1!)ʾ 51,2#+&6ʾ $'(ʾ ")$"ʾ +1!)ʾ '+"$-%&'"ʾ +)$--ʾ
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)1,!)ʾ #,ʾ)$2&-ʾ +ʾ !#%2-&"&(ʾ 'ʾ $ʾ +188 ! &'"ʾ $'(ʾ B*#,:%$'- :&ʾ
$''&,6ʾ 21,+1$'"ʾ "#ʾ ")&ʾ 5-$'ʾ $'(ʾ +" %$"&ʾ $22,#4&(ʾ $+ʾ $8#,&+$ (6ʾ
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.,$'"&(' @? +$ (' #%% ++ #'&,+ 8#,' ")& 51,2#+& #8 ,&2$, '.')1,!)&+
#,')$2&-+ ' $'(' ")& &'"+ #,' 5,#8 "+ *) !)' %$? $, +& 8,#% ")& &"" '.'
#,' $-& #8 5&*+ $'(' &$"+ '' +1!)')1,!)' #,')$2&- +)$-- @& $'('
@&!#%& 4&+"&(' '' +1!)' #%% ++ #'&,+6 "# @& &%2-#?&(' @? ")&% $+
#")&,' #' &+ *) !)' +)$-- !#%& '"# ")& ,' $'(+ 1'(&,' ")& 5,#4 + #'+
#8 ")+ !"] 5,#4 (&(' $-*$?+6 ")$" 8 " +)$-- $22&$,' "# ")& +$ ('
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5-$!&6 " + &92&(&'" ")$" $)1,!)' #,')$2&- #8 $+& +)#1-(' @&
@1 -" '' +1!)' 5$, +)' #,' 5-$!&6 $'(' ")$" +1!)' 22- !$" #'' #8 *&'"?
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#8 @1 -('.' ")& +$%& $+ $8#,&+$ (6 !$''#" @& #@"$ '&(6 " +)$-- $'('
%$? @& -$*81- 8#,' ")& #%% ++ #'&,+6 12#'' ")& 22- !$" #'' #8 ")&
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+ (&,$" #'' #8 +1!)' 1@+!, 2" #'+ $+ $8#,&+$ (' " +)$-- $'(' %$? @&
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#8 ")& &$"+ $'(' 5&*+ "# @& &,&!"&(' '' +$ (')1,!)' #,')$2&- #8 $+&
$+ "# ")&% +)$-- +&&% 8 " #,' &92&(&'" "# ")& 5&,+#'+ *)# %$?)$4&
#,' &'"&,&(' '"# +1!)' 1@+!, 2" #'' $+ $8#,&+$ (6 $!!#,('.' "# +1!)'
!)&%& 8#,' ")& -$++ 8 !$" #'' ")&,&#86 * ")' ,&.$,("# ")& %#1'" #8
")& ,' +&4&,$- 1@+!, 2" #'+6 $+ +)$-- @& 2,#2#+&(' @? +1!)' 1@+!, @&,+
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+1!)' 1@+!, @&,+ $+ $8#,&+$ (' +)$-- @& 4&+"&(' '' ")&%6 $'(' (&&%&('
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' '(' @& " 81,")&,' &'$!"&(')$" " +)$-- $'(' %$? @& ''
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1'(+ #,' #' &+ $" ")& ,' 3 +2#+$-6 8,#% %& "# %&6 $'(' '' +1!)'
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@1 -('.' #,' %2,#4 '.' $ $'+ #'' #,' H-&@& #1+& $'(' 8 !&+6 #,' ''
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"$" #'' #8 +1!)' '!1%@&'" $'(') + 1!!&++#,+6 #,6 8 ")& +$ (' #%% +N
+ #'&,+ +)$-- +# ") ':' 8 "6 '' ")& 51,!)$+& #8 H-&@& #,' 3&%&+'&
$'(+ 8 " $'(' !#'4&' &'" 8#,' ")& ,&!" #'' #8 +1!)' H-&@& #1+& $'('
88 !&+

' '(' @& " 81,")&,' &'$!"&(')$" ")& '!1%@&'" #8 $'? #'&? +$(B
+1!)' &'&8 !& #,' 5$, +)' "# *)#% $'? +1!)' #'&? +)$-- @& +# $(4$'!&(6 4$'!&("# @&
#,' '' !$+& #8)+ 3&$")' #,' &%#4$- @&8#,& ")& &2$?%&'" #8 ")& R&2$(@?
*)#-&

T' $; B' ' (2C

*)#-&' 1%' +#' $(4$'!&(6')+' 1!!&++#,' #,' 1!!&++#,+' 8#,' ")&' %&'
@&' '.6' +)$--' $'(')&B' $'(' ")&?' +' $'('$,&')&,&@?' ,&C1 ,&(' $'(' @#1'('
"#' ,&2$?' "#' ")&' +$ (' #%% ++ #'&,+' +#' %1!)' #8' ")&' +$ (' 1%' $+' +)$--'
@&!#%&' (1&6' @?' '+"$-%&'"+' (1, '.' ")&,' ,&+2&!" 4&' '!1%@&'! &+6'
'' %$''&,' 8#--#* '.' ")$"' +' "#' +$?' #1,' 5#1'(+' *' #8' ")&'
1%' +#' $(4$'!&(' #'' ")&' ,+" 3$?' #8' & ' '&9" $8"&,' ")&' 92 ,$" #''
#8' '&' &$,' 8,#%' ")&' 3$?' #'' *) !)' +$%&' +)$--')$4&' @&&'' +#' $(4$'!&('
$'(' -&'" X#,' *") '' *&'"?B#'&' 3$?+' $8"&,[6' $'(' #1,' 5#1'(+' '
*' %#,&' #8' ")&' 1%' $(4$'!&(' #'' ")&' ,+" 3$?' #8' & ' '' &4&,?'
+1!!&&('.' &$,' X#,' *") '' *&'"?B#'&' 3$?+' $8"&,[6' 1'"-' ")&' 1%'
+#' $(4$'!&(' +)$--')&' *)#--?' ,&2$ (

@" E 27 # 3' OD' GDD O DG' +1!) '!7%B^ OD#3E'

' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(')$"' '#' 5&,B' 4455' ». ' (&&%&(' $' 1!!&"&#,6' +#' $+' "#' @&' !)$,.&(' @?' #,' 1'(&,' ") +' B7!"6' *)#' +)$--' (&' #,' @&' ,&%#4&(' *") '' ")&' 2$!&' #8' '&' &$,' 8,#%' ")&' 3&$")' #,' &%#4$-' #8' ")&' '!1%@&'" %%&($"&-?' 2,&!&('.') %

#' Z"23' B2#^ #D/' IH^ HDEE /E' E"27' OD' 7 2O7D

' 5,#4 (&(' $-+#6')$"' '#' 1!!&++#,' +)$--' '' $'?' $+&' @&' -$@-&' "#' 2$?' $'?' +1!)' '+"$-%&'" @&8#,&' ")&' ,+" 3$?' #8' & ' '&9" $8"&,')&' +)$--')$4&' +#' @&!#%&' $' 1!!&++#,' !)$,.&$@-&' 1'(&,' ") +' !"6' '#,' "#' 2$?' $'?' %#,&' ")$'' '&' +1!)' '+"$-%&'" #'' +1!)' ,+" 3$?' #8' & ' '#"* ")+"$'('.' ")$" '>#,&' ")$2' '&' &$,' %$?')$4&' '"&,4&'&(' @&"*&&'' ")&' 3&$")' #,' &%#4$-' #8' ")&' -$+" '!1%@&'" *)#')$(' @&!#%&' !)$,.&$@-&' *")' ")&' 5$?%&'" #8' $'?' '+"$-%&'" 1'(&,' ") +' !" $'(' +1!)' ,+" 3$?' #8' & ,

A /' /D4 I72^ 3 #4' +26 O D#3' .' #E327^ O D#3E' O6 IH' HDEE /E' .' #^ H I O OD#3E' /D^ O FDG' OD. /D' =DHD C3' .' 3"D' Z" 7D' I O' 4/2#3DG

< ' 5,#4 (&(' $-+#6')$"' '' $+&+' *)&,&' +1!)' -$+" 2,&!&('.' '!1%@&'" +)$--' (&' #,' @&' ,&%#4&(' @&8#,&')&' +)$--')$4&' ,&!& 4&(' ")&' *)#-&' #8' +1!)' 1%' +#' .,$'"&(' @?' *$?' #8' #$'6' &4&,?' 5&,+#'' *)#' +)$--' @&' $' 1!!&++#,' #8' $'?' +1!)' '!1%@&'" +)#1-(' @&' @#1'(' $'(' #@- .&(' "#' ,&2$?' "#' ")&' +$ (' #%% ++ #'&,+' $22#' '"&(' 1'(&,' ") +' !" $'' '+"$-%&'" $"' ")&' $"&' #8' #1,' 2#1'(+' *' 8#,' ")&' 1%' *) !)' +)$--')$4&' @&&'' $!"1$--?' +#' $(4$'!&(' "#' 1!)' '!1%@&'" #'' $!!#1'" #8' +1!)' #$'' X$-")#1.)' ")&' *)#-&' %#1'" #8' +1)' #$'' %$?' '#")$4&' @&&'' ,&!& 4&(' @?' +1!)' '!1%@&'"[#'' ")&' ,+" 3$?' #8' & ' '&9" $8"&,' +1!)' 5&,+#'' +)$--')$4&' @&!#%&' $' 1!!&++#,' !)$,.&$@-&' @?' 4 ,"1&' #8' ") +' !" $'(' ")$" '#' '+"$-%&'" '#" $!"1$--?' 2$ (' #8' $'?' +1!)' #$'' +)$--' @&' (+!)$,.&(6' #,' @&' (&&%&(' #,' "$:&'' $+' (+!)$,.&(6' @?' ,&$+#'' #8' ")&' &.-&!" #,' 3&8$1-" #8' $'?' '!1%@&'" '' ,&+2&!" #8' ")&' #'2$?%&'" #8' $'?' '+"$-%&'" P4) !)' %$?')$4 ' @&!#%&' (1&' $'(' 2$?$@-&' (1,'.') +' '!1%@&'!?6' " @&' '.' ")&' ",1&')R"&'" $'(' &$' '.' #8' ") +' !" ")$" '+"$-%&'"+' #8' &4&,?' +1!)' #$'' +)$--' !#'" '1&' "#' @&' 2$ (' 1'"-' ")&' *)#-&' %#1'" #8' +1!)' #$'' +)$--' @&' $!"1$--?' 2$ (' "#' ")&' +$ (' #%% ++ #'&,+

' D#. /HD' + I#H3 I 27 36P' 3"D' (O O E^ E #D/E3 '32]D' 2' #G' 3' > E' B25DE36I' . /' +26 O D#3' .' #E327^ O D#3E' Z 3"' #3D/DE3

< ' '(' @&' " 81,")&,' &'$!"&(')$" '' #,(&,' "#' &'8#,!&' ")&' 21'!"1$-' 5$?%&'" $'(' 3 +!)$,.&' #8' +1!)' 1%+' $+' +)$--' @&' +#' -&'" $'(' $(4$'!&(' ''21,+1$'!&' $'(' @?' 4 ,"1&' #8' ")&' 5,#4 + #'+' #8' ") +' !"6' "+)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' $22#' '"&(' 1'(&,' ") +' !" 8#,' ")&' %&' @&' '.6' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' "#' "$:&' $'(' ,&!& 4&6' 2,&4 #1+' "#' ")&' $(4$'! '.' #8' $'?' 1%' #8' #'&?' "#' $'?' +1!)' '!1%N @&'"6' $' #'(' 8,#%' +1!)' '!1%@&'"6' *) !)' #'(' +)$--' '#' @&' +1@>&!" "#' $'?' "$%2' 31"?6' @' '('.') %6' *")' '&' '%#,&' 188 ! &'" 1,&" &+6 $'(

$'(' ")&%6') +' $'(' ")&,' & ,+6' 9&!1"#,+6' $'(' (% ' +",$"#,+6'># '"-?' $'(' +&4&,$--?6' "#' ")&' D ' .;+' %#+'' 9!&--&'' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' '' $' 5&'$-"?' $%#1'" ' .' "#' 3#1@-&' ")&' 1%' $(4$'!&(6' !#'(" #'&(' 8#,' ")&' (1&' 22- !$" #'' #8' ")&' #'&?' +#' "#' @C' $(4$'!&(' * ") '' *#' &$,+' 8,#%' ")&' (4$'!&6' #,' 8#,' ,&81'(' .' "#' ")&' +$ (' #%% ++ #'&,+' +#' %1!)' #8' ")&' +$ (' #'&?' $+' +)$--' '#'' @&' +#' $22- &(' * ") '' +1!)' %&6' $'(' 8#,' ")&' 5$?%&'' "#' ")&' +$ (' #%% ++ #'&,+' #8' $--' +1!)' '+"$-%&'"+' #8' ")&' +$ (' 1%' #,' 1%+' $'' ")&' +&4&,$-' %&+' @&8#,&' %&'" #'&(' $+' %$?' +&4&,$--?' @&!#%&' (1&' (1, ' .') +' '!1%@&'!?6' * ")' -&.$-' '"&,&+'' #'' +1!)' '+"$-%&'"+' ,&+2&!" 4&-?' 8,#%' ")&' ,&+2&!" 4&' %&' *)&'' &$!)' '+"$-%&'' #1.)'' "#')$4&' @&&'' 2$ (' 1'" -' ")&' $!"1$-' 5$?%&'' ")&,&#8' *) !)' #'(' +)$--')$4&' ")&' +$%&' #,!&' $'(' 88&!'' $+' #'(+' "#' ")&' D ' .;+' %#+'' 9!&--&'' $>&+"?6' $'(' 8#,' +' V+&6')$4&' @?' 4 ,"1&' #8' $'' !'' 2$++&(' '' ' '' ")&' *&'"?B8 ,+'' $'(' *&'"?B' +&!#'(' &$,+' #8' ")&' & . '' #8' D ' .' ' ")&') ,(6' '" "1-&(' E' ' ' ' * ' ' ' ' ' ' ' O F' ' " '

$'(' 1 "+' +)$--' $'(' %$?' @&' 2,#+&!1"&(' $'(' !$,, &(' #'' 12#'' +1!)' #'(+6' @?' ")&' ,(&,+' $'(' 1'(&,' ")&' 3 ,&!" #'+' #8' ")&+$ (' #%% +N + #'&,+6' 8#,' ")&' &!#4&,?' #8' ")&' #'&?' *) !)' +)$--' @&' (1&' ")&,&#'6' '' +1!)' $'(' ")&' +$%&' $'&,' $+' 1 "+' #'' #'(+' "#' ")&' D ' .;+' $>&+"?' %$?' @&' 2,#+&!1"&(' @?' 4 ,"1&' #8' ")&' +$ (' !"

< ' 5,#4 (&(' $-+#')$'' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' 8' ")&?' +)$--' +#' ") ' :' 8 "6' $'' ")&' %&' #8' %$: ' .' +1!)' (4$'!&6' "#' + . ' 8?' ")&,' '"&'" #'' "#' ,&C1 ,&' '"&,&+"6' $'' ")&' -$*81-' $"&' #,' $'?' -&++' $"&6' "#' @&' 2$ (' 8#,' ")&' +$4'&' 8,#%' ")&' %&' #8' $(4$'! ' .' ")&' +$ (' 1%6' #,' $'?' #")&,' %&6' 1'" -' &2$?%&'' ")&,&#8 6' $'(' '' +1!)' $+&' ")&' #'(' $8#,&+$ (' +)$--' @&' 8,$%&(' $'(' 5$?%&'' %$(&' $!!#,(' .-?

(\OOOE #' D£ O26' 23' OD' .' O2] #4' G^ F2#HD' E 4# .6' 3"D /' #3D#^ 3 #'3 '/D\I /D' #3D/DE3

< ' '(' @&' ''81,")&,' &'$!"&(')$''$--' $'(' &4&,?' 1%' $'(' 1%+' #8' #'&?' +#' "#' @&' $(4$'!&(' @?' ")&' +$ (' #%% ++ #'&,+' $22# '"&(' 1'(&,' ") +' !'' "#' $'?' +1!)' '!1%@&'' $+' $8#,&+$ (' +)$--6' * ")' #,' * ")#1'' '"&,&+"6' $+' ")&' $+&' %$?' @&6' 8,#%' ")&' %&' #8' $(4$'! ' .' $'?' 5$,'' ")&,&#86' @&' $)$,.&' #'' $--' ")&' H-&@&' $'(+6 ")&+6' #%2#+ " #'' 8#,' ")&+6' &'"+6' #(1+&+6' $-$, &+6' " 2&'(+6 &&+6' H,$"1 " &+6' $'(' $--' #")&,' !!-&+ $+" !$-' %#-1%&'"+' $'(' 5,#8 "+' *)$"+#&4&,' $, + ' .' #,' "#' $, +&' 8,#%' ")&' &'&8 !&' #8' *) !)' +1!)' 5&,+#'' #,' 5&,+#'+' +)$--' @&' '!1%@&'' $+' $8#,&+$ (' $'(' '' !$+&' 3&8$1-'' +)$--' @&' %$(&' '' ")&' (1&' 22- !$" #'' #8' +1!)' (4$'!&+6' #,' ")&' ,&.1-$' 3 +!)$,.&' #8' $'?' #8' ")&' +$ (' 5$?%&'"+' #,' $'?' 5$,'' ")&,&#8' #'' ")&' 3$?+' $22# '"&(' 8#,' ")&' 5$?%&'' ")&,&#86' @?' +1!)' '!1%@&'6' #,') +' 1!!&++#,' #,' 1!!&++#,+6' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' ,&!#4&,' ")&' +$%&' @?' 5,#!&++' #8' &C1&+",$" #'6' $'(' +1!)' &C1&+",$" #'' +)$--' @&' $22- &(' 8#,' $'(' ++1&(' #'' ")&' &," 8 !$"&' #8' +1!)' #%% ++ #'&,+' '' ")&' $'&,' $'(' +1@>&!'' "#' ")&' &.1-$" #'+')&,&' B@&8#,&' (,&!"&(' $+' "#' &C1&+",$" #'+' '' $'?' #")&,' $+&' "#' @&' $22- &(' 8#,' @?' ")&' +$ (' #%% ++ #'&,+

IOE' 2G^ F2#HDG'3 'OD'2' ("2/4D' # 2? 3"D' HH7DE 2E^ 3 H2? O 7I^ OD#3E' .'3"D' D#D. HD

#' GD.2I7' .' =DC26OD#3!' (O O EE #!' D/E' O26' /D^ H FD/' 3"D' E2OD' O6' D^ \IDE3/23 #!

< ' '(' @&' ''81,")&,' &'$!"&(')$''+1!)' 1%' #,' 1%+' #8' #'&?' $+' +)$--' @&' -&'' #,' $(4$'!&(' "#' $'?' +1!)' '!1%@&'' @?' 4 ,"1&' 71+)&(' ')&' #8' ") +' !'' +)$--' @&' (+" ' .1 +)&(' $'(' %&'" #'&(' 2,"6' '' ")&' 1+1$-' !&," 8 !$"&

IO' 7D#3' 3 '

&," 8 !$"& "# @& . 4&' @? $'? ,!)@ +)#2 #, +)#2 @? 4 ,"1& #8 ")& !"+ '#*' '8#,!& "# &'$@-& $' '!1%@&' *)# @1 -(+ "# ,&!#4&, $.$ '+") + 1!!&++#,8,#% $'? $'(&4&,? 1% #, 1%+ @? $'? +1!) '!1%@&' -$ (#1" #, &92&'(&(#1" #8) + #*' 2,#2&, '!#%& ")& @1 -('. !R8 +1!) H-&@& #1+& $'(88 !&+ *) !) *#1-(#")&,* +& @& $--#*&(@? +1!) &," 8 !$"& $'($ +&2$,$"& $'((+" '!" 5#," #' #8 ")& +$ (&," 8 !$"& +)$-- @& $--#""&(@? ")& +$ (,!)@ +)#2 #, +)#2 8#, $+!&,"$ ' '. ")& 92&'("1,& #8 ")& 1% +# -&' $'($(4$'!&(@? ")& +$ (#%% ++#'&,+

H2ED #^ H I O OD#3 G DE OD. /D 3"D Z7 7D I O E"27 OD 2G^ F2#HDG! I H^ HDEE / 3 ' /D^ HD FD 3"D =D 7 2 #GD/ I C # 7]D DH I / 36

'(@& " 81,")&, &'$!"&( )$" ' !$+& $'? +1!) '!1%@&' +)$-- (& #, @& ,&%#4&(@&8#,& $-- ")& 1%+ $.,&&("# @& $(4$'!&(@? ")& +$ (#%% ++#'&,+ $22# '"&(@? 4 ,"1& #8") + !" 8#, @1 -('. #, 2,#!1, '. +1!) H-&@& #1+& $'(88 !&+ $+ $8#,&+$ (+)$--)$4& @&&' $!"1$--? $(4$'!&(@? ")& +$ (#%% ++#'&,+ ")&' $'(' +1!) $+&) + 1!!&++#, +)$-- @& &'" "-&($'(@#1'("# ,&!& 4& ")& &%$ '(&, #8")& #'&? +# $.,&&("# @& $(4$'!&($'(+)$--. 4& ' 2,#2#," #' "# ")& #'&? ,&%$ ' ' . "# @& $(4$'!&(")& - :& &!1N , "? ")$")$(@&&' . 4&' @?) + 5,&(&!&++#, @? #'("# ")& D '.; %#+" 9!&--&' $>&+"? ")& 5&'$-"? #8 *) !) #'(+)$-- @& ,&!#4&,&(' %$''&,)&,& 'B@&8#,& (&!-$,&($'(&'$!"&(* ") ,&+2&!" "# ")& &!#4&,? #8 ")& 5&'$-"? #8 ")& #'(+# . 4&' @?) + 5,&(&!&++#, $'(")& #'&? +# $(4$'!&(* ") #, * ")#1" '"&,&+" $+ ")& $+& %$? @& +)$-- $-+# @& !)$,.&(#' +1!) &'&8 !& ' ")& +$%& $''&, $+ ")& #'&? $(4$'!&("# +1!) 8 ,+" '!1%@&' $'(,&!#4&,$@-& ,4 ")& - :& $''&,

#H I O OD#3 3]DDC I 7G^ #4E #E I /DG

5,#4 (&($-+# $'(@& " 81,")&, &'$!"&( )$" ")& '!1%N @&' 8#, ")& %& @& '. #8 +1!) &'&8 !&+)$-- $''1$--? $") + #*' 92&'!& 1'" ")& -$+" '+"$-%&' #8 +1!) 1% +)$-- @& 2$ (:&&2 ")& 1 -('.+ #' *) !) #'&? +# -&' $'($(4$'!&(+)$--)$4& @&&' &92&'(&(,&.1-$,-? '+1,&($.$ '+" ,& $" +#%& 21@- ! '+1,$'!& 88 !& (#, "# ")& 81-- %#1' $" -&$+" #8 ")& 1% +# -&' $'($(4$'!&($'(' (&8$1- ")&,&#8 +)$-- @& -$*81- 8#, ")& #1," #8)$'!&,? #, 9!)&C1&, "# +&C1&+"&, ")& 5,#8 "+B #8 +1!) &'&8 !& 5$,+) V' #')$2&-,? #, 5&,2&"1$- 1,$!? - :& $''&, $+)&,& (,&!"&($+ "# &C1&+",$" #'+ ++1&(#' ")& 5&"#' #8 ")& +$ (#%% ++#'&,+ 1'" +1!) '+1,$'!& +)$-- @& %$(&

) 3 3 'D&3D#G 3 ' OE3/ I H3 . 273D/ ")& !2I E # Z # . /HD . / O I 7G #4 7DOD > I ED

5,#4 (&($-*$?+)$" '#") '.)&,& ' !#'"$ '&(+)$-- &9"&'(#, @& !#'+",1&("# &9"&'("# -%" #, &+",$ ' ")& 5#*&, @? ") + !" 4&+"&(' ")& #%% ++#'&,+ "# ,$' #8 ,&!#4&, @? ")& 1% #, 1%+ #8 #'&? ,$"1 "#1+-? "# $'? '!1%@&' #, 5&,2&"1$- 1,$"& 8#, ")& 51,2#+&)&,& 'B$8"&, %&'"#'&(*)&")&, +1!) '!1%@&' +)$-- #, +)$-- '#")$4& ,&!& 4&($ #$' "# @& ' 2$, $22-&("# ")& +$ (51,2#+& '#, "# #@+",1!" $''1-%$:& 4# (#, $-"&, ")& $*+ '#*' 8#,!& 8#, @1 -('.A ,&2$, '. #, %2,#4 '. H-&@& #1+&+ #, $'? #8 ")&% +$4& $+)&,& ' %&'"#'&(@1" ")$" +1!) '!1%@&' +)$-- #, +)$-- ") ' 2,#2&, "# 2,#!&&(1'(&, $'($!!#,('. "# ")& +$ ($*+ %$? (# +# ")& +$%& $''&, $+ 8 ") + !")$('#" @&&' O2GH

M '(@& & '$!"&(6)$" *)&,& ")& $' '1$- <$-1& #8 $'? &'&8 !& #, #8 $'? 5&,2&"1$- 1,$!?6 *) !))$+ '#" @&& ' $1.%&' "&($+)&,& %&' " #'&(6 +)$-- '#" $%#1' " "# '&)1'(,&(5#1'(+ *2 * " $'(")&,& +)$-- @& '# H-&@& #1+& ")&,&#'6 +)$-- @& -$*81- 8#, ")& +$ (#%% ++ #'&,+ .,$"1 "#1+-? "# .,$' 1,$ #8 '&)1'(,&(5#1'(+ "# ")& '!1%@&' ")&,&#86 +1!) $' '&, $+ ")&? +)$-- ") ' : 8 "6 "# &'$@-&) % ")& @&""&, "# !$,,? #' ")& @1 -(' . #8 $ H-&@& #1+& ")&,&#'6 $'(@&8#,& +1!) #1+& + @&.1' "# @& @1 -"

(O O EE #! D/E O26 4/2#3 7A\A HD/32 # (2EDE

'('@& 81,")&, &'$!"&(6)$" +)$-- $'(%$? @& -$*81- 8#, ")& +$ (#%% ++ #'&,+ 1'(&, ") + !"6 *)&' $'($+ ")&, R1(.%&' %$? @& 2,#2&,6 #1" #8 +1!) +1,2-1+ 1'(+ $'(#' &+ +# $+ $8#,&+$ (8,#% %& "# %& ,&%$ ' ' . ")& , $'(+ #, $" ")&, 3 +2#+$-6 "# $1.%&' $'? &'&8 !& * ") 1,& #8 #1-+6 4 '.6 #, 1,$!?6 22,#2, $"& #, %2,#2, $"&6 #, ")& $ '"&'$'!& #8 $'? 5$,+#'6 < !$,6 1,$"&6 $'(' +"&, #88 ! $" ' . $'?)1,!) #,)$2&-6 #, - !&'+&(5-$!& #8 E#,+) 2 *)&,& ")& "1,.? $'("&+ #8 ")& V' "&( )1,!) #8 . $'($+ '#* @? $* &+"$@- +)&($,& #, +)$-- @& 1+&($'(#@+&,4&(6 $'(*) !) +)$-- $22&$, "# ")&% "# @& 1'(&, ")& !-&$, ?&$,-? <$-1& #8 *#)1'(,&(5#1'(+6 $8"&, $--#* ' . ")& 3&(1!" #'+)&,& 'B@&8#,& %&' " #'&(6 & ")&, @? ")& 51,!)$+& #8 H-&@&+ #, #")&, $'(+6 #, ")&+ #, #%2#+ " #'+ 8#, ")&+6 #, @#")6 #, @? .,$' ' . "# ")& '!1%@&' #8 +1!) &'&8 !& #, 4 '.6 #, "# +1!) 5$,+#'6 < !$,6 1,$"&6 #, ' +"&,6 $ $' '1$- $-$,?6 "# @& 2$ (#1" #8 ")& &'"+6 ++1&+6 $'(5,#8 "+ #8 ")& +&4&,$- $'(+ #, &'&%&' "+ $'(")& '"&,&+" #, 3 4 (&'(+ #8 ")& +&4&,$- #' &+ $'(5,#2&," &+)&,&@? 4&+"&(+1!) #%% ++ #'&,+ $+ $8#,&N +$ (6 #, $'? #")&, $'($+ "# ")& +$ (#%% ++ #'&,+ +)$-- +&&%6 8 "] 5,#4 (&($-*$?+6 ")$" ")& <$-1& #8 +1!) &'&8 !& 4 '.6 $ 'N "&'$'!&6 #, 1,$!?6 "#.&")&, * ") +1!) 1.%&' "$" #' $+ $8#,&+$ (6 +)$-- '# ")& *)#-& &9!&&(")& <$-1& #8 *#)1'(,&(5#1'(+ @? ")& &$,

+ ZD/ . (O O E E #D/E 3 214OD#3 D#D. HDE

< 5,#4 (&($-+#6 $'(@& 81,")&, &'$!"&(6)$" '# 1.%&'N "$" #' #8 ")& &'&8 !& #, $ '"&'$'!& #8 $'? +1!) 5$,+#'6 < !$,6 ' +"&,6 #, 1,$"& $+ $8#,&+$ (+)$-- @& %$(& @? $'? #8 ")& E$?+ #, &$'+ $8#,&+$ (@? ")& +$ (#%% ++ #'&,+6 1'-&++ ")&,& +)$-- @& $" ")& %& #8 +1!) 1.%&' "$" #' X#, * ")),&& &$,+ $"&, +1!) 1.%&' "$" #' +)$-- @& %$(&6 #, 21,!)$+&(6 #, .,$'"&($+ $8#,&N +$ (6[* ") +1!) &'&8 !&6 4 '.6 #, 1,$!? $)1,!) #,)$2&-6 #, #")&, - !&'+&(5-$!& #8 E#,+) 26 *)&,& 3 4 '& &,4 !& $+ $8#,&+$ (%$? $'(+)$-- @& 2&,8#,%&(6 &4&,? $") ")& -&$+"6 @? +1!) 5$,+#'6 < !$,6 1,$"&6 #, ' +"&, *)#+& &'&8 !& #, +)$-- @& +# $1.%&' "&($+ $8#,&+$ ($'(+1!) !$+& +1!) 1.%&' "$" #' @? $-$,? #, #")&, * +& +)$-- @& %$(& $+ $8#,&+$ (*)&,& '# +1!))1,!) #,)$2&-6 #, #")&, - !&'+&(5-$!& #8 E#,+) 26 +)$-- @&6 $" ")& %& #8 +1!) 1.%&' "$" #' @& '.+# %$(& #, .,$'"&($8#,&+$ (6 $!"1$--? @1 -"6 @1 ")& +$%& + "# @& +# %$(& $'(.,$'"&(#,(&, "# &'N !#1,$.& ")& @1 -(' . #, ,&2$, ' . +1!))1,!) #,)$2&-6 #, #")&, - !&'+&(5-$!& #8 E#,+) 26 *) !))$,& &$,+ $+ $8#,&+$ (6 +1!) 1.%&' "$" #' +)$--6 '#" * ")+"$'(' . $'? +1!) 1.%&' "$" #' #, H,$' " $+ $8#,&+$ (6 '#" !#%%&' !& #, "$:& 2-$!&6 '#, +)$--B $'? 5$,+#'6 < !$,6 1,$"&6 #, ' +"&, @& & ' "-&("# ,&!& 4& #,)$4& $'? .)" *)$"&4&,

) 14OD#^ 323 #! I#7DEE 3"D/D E2 ("I/H"Z"D/D * F #D D/^ F HD E CD/^ . /ODG! / 3D D#H I/24D 3"D OI 7G #4 / /DC2 / #4 . #D Z 3" # "/DD - D2/E 2.3D/

TQ L ' L B ' ' (2C

*)$"&4&,' "# (&%$'(' #,' ,&!& 4&6 +1!)' $-$,?' #,' 1.%&'"$" #'' @1"
8,#%' ")&' %&' *)&'' +1!)')1,!)' #,')$2&-6 #,' #")&,' - !&'+&(' 5-$!&'
#8' E#,+) 26 +)$--' @&' $!"1$--?' @1 -" $'(' 8 ""&(' 8#,' ")&' 5&,8#,%$'!&'
#8' +1!)' 3 4 '&' &,4 !&' $+' $8#,&+$ (

.' #HIOOD#3' < ' '(' @&' " 81,")&,' &'$!"&(')$" 8' ")&' '!1%@&'" #8' $'?
D#D. HD'G ' &'&8 !&6 #,' $'?' 5$,+#'6 < !$,6 ' +"&,6 #,' 1,$"&6 *)#+&' $ '"&N
3' /DE GD' '$'!&')$+' @&&'' $1.%&'"&(' @?' ")&' ,1+"&&+' $'(' #%% ++ #'&,+' #8'
272/6' 3 ' ,+" ,1 "+6 #,' *) !)' +)$--' @&' +# $1.%&'"&(' @?' ")&' #%% ++ #'&,+'
HD2ED 1'(&,' ") +' !"6 @?' ")&' H,$'" #8' +1!)' $''1$-' $-$,?' #,' #")&,* +&6
+)$--' '#" ,&+ (&' 12#'' +1!)' $1.%&'"&(' &'&8 !&6 4 '.6 #,' 1,$!?6 #,'
+# !#'4&' &'"-?' $+' +)$--' @&' +$" +8$!"#,?' "# ")&' +)#2' #8' ")&' 3 #!&+&6
#,' +)$--' @&' * -81--?' $@+&'" 8,#%' ")&' 1,&' #8' +1!)')1,!)' #,')$2&-'
8#,' ")&' &,4 !&' #8' *) !)' +1!)' 1.%&'"$" #'')$+' @&&'' #,' +)$--' @&' +#
.,$'"&(6 8#,' $'?' 5&, #(' &9!&&('.' ")&' 2$!&' #8' 9"?B#'&' 3$?+' "#.&N
")&,6 #,' "# @&' $!!#1'"&(' $" +&4&,$-' %&+' '' $'?' '&' &$,6 $'('
,'$:&') +' &+ (&'!&' $'('$@ ('.' $" $'?#")&,' 5-$!&' #,' 5-$!&+6 * ")#1"
+1!)' !&'!&' #,' 9&%2" #'' $+' $--#*&(' @?' $'' !" 2$++&(' '' 8")'
0H Q' I &$,' #8' ")&' & .'' #8' +' -$"&' $>&+"?6 '" "1-&('
' * ' ' $ ' ' ' ' '7 ' '> ' '
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' ' ,&-$'(6 $'('1'-&++' +1!)' 5$,+#'6 < !$,6 1,$"&6 #,' ' +"&,' +#
"# @&' $@+&2" @?' 4 ," -&' #8' +1!)' !&'!&' #,' 9&%2" #'' +)$--' 8 '(' $'(' 2,#N
4 (&' $' +188 ! &'" 5&,&#'6 "# @&' $22,#4&(' #8' @?' ")&' ,!)@ +)#26 +)#26
#,' #")&,' ,('$,?' #8' +2!)' 3 #!&+&6 "# +122-?' ")&' 1,&' $'(' 2&,8#,%'
3 4 '&' &,4 !&' '' +1!)')1,!)' #,')$2&-' $+' $8#,&+$ (' (1, '.' +1!)'
@+&'!&' $'(' 8")&,&' +)$--' @&' $' 3 +!#'" '1$'!&' #8' ")&' 5&,8#,%$'!&'
#8' 3 4 '&' &,4 !&6 &9!&2" 8#,' ")&' '&!&++$,?' &2$,+6 #,' ,&@1 -('.6 #,'
&'-$,. '.' #8' ")&' +$ (')1,!)&+' #,')$2&-+6 #,' 8#,' #")&,' $1+&' "# @&'
$22,#4&(' #8' @?' ")&' ,!)@ +)#267 +)#26 #,' #")&,' ,('$,?' #8' ")&'
3 #!&+&6 $'(' !&," 8 &(' "# ")&' +$ (' #%% ++ #'&,+' $+' $8#,&+$ (' ")&''
$'(' '' $'?' #8' +$ (' $+&+' +1!)' $-$,?' #,' 1.%&'"$" #'' +# %$(&' #,'
"# @&' %$(&' #8' $'?' +1!)' &'&8 !&6 4 '.6 #,' 1,$!?6 $'(' $--' .)"
$'(' "-&' #8' $'?' +1!)' 5$,+#'6 < !$,6 '!1%@&'"6 1,$"&6 #,' ' +"&,'
"# (&%$'(' #,' ,&!& 4&' +1!)' $-$,?' #,' 1.%&'"$" #'6B' +)$--' 1""&,-?'
!&$+&' $'(' @&' (&"&,% '&(6 (1, '.') +' '!1%@&'!?' #'-?6 '#"* ")N
+"$'('.' $'?' +1!)' H,$'" @&8#,&' %$(&' ")&,&#8' $'('")$" +1!)' 5$,+#'>
< !$,6 '!1%@&'"6 1,$"&6 #,' ' +"&,' +)$--' 8#,' &4&,' $8"&,' @&' (+$@-&('
$'(' ,&'(&,&(' '!$2$@-&' #8')$4 '.' #,' &'>#? '.' +1!)' $-$,?' #,' 1.N
%&'"$" #'6 @1" ")$" ")&' +$%&' +)$--' '&4&,")&-&++' @&' ,&+"#,&(' $'('
2$?$@-&' "# ")&' '&9" 1!!&++#,' $+' 8' ")&' +$%&')$(' '#" +# !&$+&(' #,'
@&&'' +# +1+2&'(&(' $'('")$" ")&' +$ (' $-$,?' #,' 1.%&'"$" #'' +#
+"#22&(' (1, '.' ")&' '!1%@&'!?' #8' +1!)' (+$@-&(' 5&,+#'' +)$--' @&'
4&+"&(' '' ")&' +$ (' #%% ++ #'&,+6 "# @&' $22-&(' @?' ")&%' "# +1!)'
V+&+' $'(' 51,2#+&+' $+' ")&' +$%&' % .)")$4&' @&&'' $22-&(' "# 8' ")&'
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.' #HIOOD#3' < ' '(' @&' " 81,")&,' &'$!"&(' @?' ")&' 1")#, "?' $8#,&+$ (6
%&8 !&7'$:&' '!1%@&'" #8' $'?' +1!)' &'&8 !&6 4 '.6 #,' 1,$!?6
W' EDH #G!' 5$"+#'6 < !$,6 1,$"&6 #,' ' +"&,6 *)#+&' $ '"&'$'!&' +)$--
3"D'. /E3' 3 '@&' @&' $1.%&'"&(' @?' ")&' H,$'" #8' +1!)' $''1$-' $-$,?' #,' #")&,* +&'
F G' 556' 3 D' +$ (6 #%% ++ #'&,+' 1'(&,' ") +' !"6 #,' *) !)' +)$--')$4&
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#%% ++ #'&,+ʾ #8ʾ ,+"ʾ ,1 "+ʾ 'ʾ ʾ +)$--ʾ $!!&2"ʾ $'(ʾ "$:&ʾ $'?ʾ
#")&,ʾ &'&8 !&6ʾ 4 '.6ʾ #,ʾ 1,$!?6ʾ $'(ʾ @&ʾ '+" "1"&(ʾ $'(ʾ '(1!"&(ʾ
'"#ʾ ")&ʾ 5#++&++ #'ʾ #8ʾ ")&ʾ +$%&6ʾ ")$"ʾ ")&'ʾ ")&ʾ +$ (ʾ &'&8 !&6ʾ 4 '.6ʾ
#,ʾ 1,$!?ʾ *) !)ʾ +)$--ʾ)$4&ʾ @&&'ʾ +#ʾ $1.%&'"&(ʾ +)$--Bʾ 8,#%ʾ ")&'!&N
8#,")ʾ @&ʾ $'(ʾ @&ʾ (&&%&(ʾ $'(ʾ $(>1(.&(ʾ $@+#-1"&-?ʾ 4# (ʾ "#ʾ $--ʾ '"&'"+ʾ
$'(ʾ 51,2#+&+ʾ *)$"+#&4&,ʾ $'(ʾ ")$"ʾ "+)$--ʾ @&ʾ -$*81-ʾ 8#,ʾ ")&ʾ ,!)N
@ +)#26ʾ +)#26ʾ #,ʾ #")&,ʾ 5$",#'ʾ "#ʾ !#--$"&ʾ #,ʾ 2,&+&'ʾ ")&,&"#6ʾ 'ʾ
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,&+ .'&(6ʾ $'?ʾ !&'!&6ʾ V' #'6ʾ #,ʾ #")&,ʾ 3 +2&'+$" #'ʾ "#ʾ ")&ʾ !#'",$,?ʾ
'ʾ $'?* +&ʾ '#"* ")+"$'('.ʾ $'(ʾ ")$"ʾ &4&,?ʾ !&'!&6ʾ V' #'6ʾ #,ʾ 3 +N
2&'+$" #'6ʾ #8ʾ *)$"ʾ $%&ʾ #,ʾ $%&+6ʾ T1$- "?ʾ #,ʾ T1$- " &+ʾ +#&4&,6ʾ ʾ
#@"$ '&(ʾ !#'",$,?ʾ "#ʾ ")&ʾ ",1&ʾ &$' '.ʾ $'(ʾ '"&'" #'ʾ #8ʾ ") +ʾ !"6ʾ
+)$--ʾ @&ʾ $@+#-1"&-?ʾ 4# (ʾ $'(ʾ #8ʾ '#'&ʾ &88&!"ʾ $'(ʾ 'ʾ !$+&ʾ $'?ʾ 5&,N
+#'ʾ $-,&$(?ʾ 2#++&++&(ʾ #8ʾ $'?ʾ &'&8 !&6ʾ 4 '.6ʾ #,ʾ 1,$!?ʾ +)$--ʾ
@&ʾ !#--$"&(ʾ #,ʾ '+" "1"&(ʾ "#ʾ $'?ʾ #8ʾ ")&ʾ +$ (ʾ R-&'&8 !&+6ʾ 4 '.+6ʾ
#,ʾ 1,$! &+ʾ *) !)ʾ)$4&ʾ @&&'ʾ)&,&"#8#,&ʾ $1.%&'"&(ʾ $+ʾ $8#,&+$ (ʾ
@?ʾ ")&ʾ +$ (ʾ ,1+"&&+ʾ $'(ʾ #%% ++ #'&,+ʾ #8ʾ ,+"ʾ ,1 "+ʾ 'ʾ ʾ
#,ʾ *) !)ʾ +)$--ʾ @&ʾ +#ʾ $1.%&'"&(ʾ @?ʾ ")&ʾ #%% ++ #'&,+ʾ 1'(&,ʾ
") +ʾ !"ʾ $+ʾ $8#,&+$ (6ʾ &4&,?ʾ +1!)ʾ #--$" #'6ʾ 5,&+&'"$" #'6ʾ #,ʾ #N
% '$" #'ʾ +)$--ʾ @&ʾ 1"&,-?ʾ 4# (ʾ "#ʾ $--ʾ '"&'"+ʾ $'(ʾ 51,2#+&+ʾ *)$"N
+#&4&,ʾ] 5,#4 (&(ʾ $-*$?+6ʾ ")$"ʾ '#ʾ $2+&ʾ +)$--ʾ '!1,ʾ 12#'ʾ $'?ʾ ʾ $2+&ʾ
4# ($'!&ʾ #8ʾ $'?ʾ &'&8 !&6ʾ 4 '.6ʾ #,ʾ 1,$!?ʾ *) !)ʾ +)$--ʾ)$22&'ʾ * ")#1"ʾ
'ʾ !#'+&C1&'!&ʾ #8ʾ ") +ʾ !"6ʾ 1'"-ʾ 9ʾ #'")+ʾ $8"&,ʾ #" !&ʾ +)$--ʾ @&ʾ
. 4&'6ʾ 'ʾ $--ʾ $+&+ʾ 'ʾ *) !)ʾ #" !&ʾ +ʾ '#*ʾ @?ʾ $*ʾ ,&C1 ,&(6ʾ "#ʾ ")&ʾ
5&,+#'ʾ #,ʾ 5&,+#'+ʾ)$4 '.ʾ $ʾ .)ʾ "#ʾ 2,&+&'ʾ #,ʾ '#% '$"&ʾ "#ʾ ")&ʾ
+$%&6ʾ @?ʾ ")&ʾ ,!)@ +)#2ʾ #,ʾ +)#2ʾ #8ʾ ")&ʾ 3 #!&+&6ʾ #,ʾ #")&,ʾ ,(N
'$,?ʾ 8#,ʾ ")&ʾ %&ʾ @&ʾ '.6ʾ 'ʾ E, " '.ʾ 1'(&,ʾ) +ʾ #,ʾ ")&,ʾ $'(ʾ $'(ʾ
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< ʾ '(ʾ *)&,&$+ʾ ")&ʾ 5,#4 + #'ʾ 8#,ʾ $1.%&'" '.ʾ +1!)ʾ 2##,ʾ +/ F E #Eʾ
4 '.+ʾ $+ʾ +)$--ʾ @&ʾ ")#1.)"ʾ 2,#2&,ʾ @?ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+ʾ "#ʾ @&ʾ +#ʾ "D/D .ʾ3 ʾ
$1.%&'"&(ʾ +ʾ '"&'(&(ʾ "#ʾ &9"&'(ʾ '#"ʾ #'-?ʾ "#ʾ 5$,+#'+6ʾ < !$,+6ʾ $'(ʾ
1,$"&+ʾ *)#ʾ !#%&ʾ 'ʾ @?ʾ 5,&+&'"$" #'ʾ #,ʾ #--$" #'6ʾ '+" "1" #'ʾ $'(ʾ 2#Gʾ (I/23DEʾ
'(1!" #'6ʾ #,ʾ !&'!&6ʾ @1"ʾ - :&* +&ʾ "#ʾ +1!)ʾ ' +"&,+ʾ *)#ʾ !#%&ʾ 'ʾ
@?ʾ 3#'$" #'6ʾ #,ʾ $,&ʾ #'-?ʾ +" 2&'($,?ʾ 5,&$!)&,+ʾ #,ʾ 1,$"&+ʾ 'ʾ $'(ʾ #8ʾ
%2,#2, $"&ʾ #,ʾ 22,#2, $"&ʾ 5$, +)&+6ʾ #88 ! $" '.ʾ 'ʾ $'?ʾ)1,!)ʾ #,ʾ
)$2&-ʾ *)&,&ʾ ")&ʾ "1,.?ʾ $'(ʾ "&+ʾ #8ʾ ")&ʾ V' "&(ʾ)1,!)&+ʾ #8ʾ . =
ʾ $'(ʾ ʾ $+ʾ @?ʾ $*ʾ &+"$@- +)&(ʾ +)$--ʾ @&ʾ 1+&(ʾ $'(ʾ #@+&,4&(6ʾ
+#%&ʾ #8ʾ *) !)ʾ %$?ʾ)$22&'ʾ '#ʾ "#ʾ @&ʾ #,2#,$" #'+ʾ '#,ʾ)$4&ʾ $ʾ -&.$-ʾ
1!!&++ #'6ʾ $'(ʾ ")&,&8#,&ʾ $,&ʾ '!$2$@-&ʾ #8ʾ "$: '.ʾ $ʾ H,$'ʾ #8ʾ +1!)ʾ
2&,2&"1$-ʾ 1.%&'"$" #'ʾ @?ʾ $ʾ $-$,?6ʾ #,ʾ '(#*%&'ʾ #8ʾ +1!)ʾ "- &+ʾ
#,ʾ $'(6ʾ $+ʾ +ʾ @?ʾ ") +ʾ !"ʾ '"&'(&(ʾ $'(ʾ 'ʾ +#%&ʾ 5-$!&+ʾ "ʾ % .)"ʾ @&ʾ
'ʾ ")&ʾ 5#*&,ʾ #8ʾ ")&ʾ %2,#2, $"#,6ʾ 3#'#,6ʾ 5$,+#'6ʾ #,ʾ < !$,ʾ "#ʾ * ")N
(,$*ʾ ")&ʾ --#*$'!&ʾ '#*ʾ #,ʾ)&,&"#8#,&ʾ 2$ ("#ʾ ")&ʾ ' +"&,ʾ #,ʾ 1,$"&ʾ
+&,4 '.ʾ ")&ʾ 1,&6ʾ #,6ʾ 'ʾ !$+&ʾ #8ʾ $ʾ)$2&-,?6ʾ ")&ʾ '!1%@&'ʾ #8ʾ ")&ʾ
#")&,ʾ)1,!)ʾ % .)"ʾ ,&81+&ʾ "#ʾ &%2-#?ʾ $ʾ 1,$"&6ʾ #,ʾ 2&,% "ʾ $ʾ ' +"&,ʾ
(1-?ʾ '#% '$"&(ʾ #,ʾ - !&'+&(ʾ "#ʾ #88 ! $"&ʾ 'ʾ +1!)ʾ $1.%&'"&(ʾ)$2&-6ʾ
$'(ʾ % .)"ʾ #88 ! $"&ʾ ")&,&ʾ 'ʾ) %+&-8ʾ $'(ʾ "$:&ʾ ")&ʾ &'&8 "ʾ #8ʾ ")&ʾ 1.N
%&'"$" #'6ʾ ")#1.)ʾ) +ʾ 4 '.ʾ @&ʾ $@#4&ʾ ")&ʾ <$-1&ʾ #8ʾ ")#+&ʾ *) !)ʾ $,&ʾ
)&,&@?ʾ '"&'(&(ʾ "#ʾ @&ʾ $1.%&'"&(6ʾ $'(ʾ ")&ʾ $ '"&'$'!&ʾ #8ʾ ")&ʾ
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")&,&8#,& @& " &'$!"&(@? ")& 1")#, "? $8#,&+$ (6)$" $-- +1!))1,!)&+6 1,$! &+6 #,)$2&-+ *) !) +)$-- $" $'? %&)&,&$8"&, @& $1.%&'"&(@? ")& +$ (#%% ++ #'&,+ +)$-- @& $'($,&)&,&@? (&!-$,&($'(&+"$@- +)&("# @&6 8,#% ")& %& #8 1!) 9-1.%&'"$" #'+ 5&,2&"1$- 1,&+ $'(&)&8 !&+ $'(")& ' +"&,+ (1-? '#% '$"&($'(- !&'+&(")&,&1'"#6 $'(")& , 1!!&++#,+ ,&+2&!" 4&-?6 +)$-- @& $'(@& &+"&&%&(' $* #(&+ 5#- " ! $'(#,2#,$"&6 $'(+)$--)$4& 2&,2&"1$- 1!!&+N + #' @? +1!) $%& $'($%&+ $+ ' ")& H,$'" #8 +1!) 1.%&'"$" #' +)$-- @& %&'" #'&(6 $'(+)$--)$4& $ -&.$- 2! "?6 $'($,&)&,&@? &'$@-&("# "$:& ' 5&,2&"1 "?6 "# ")&% $'(")& , 1!!&++#,+6 $-- +1!) $'(+ $'(&'&%&'"+ $'(")&+ $+ +)$-- @& .,$'"&("# #, 21,!)$+&(8#, ")&% @? ")& +$ (#%% ++ #'&,+6 #, +1!) $''1$- $-$, &+ $+ +)$-- @& +# .,$'"&(21,+1$'" "# ") + !"6 $'? $* #, "$"1"& "# ")& !#'",$,? '#"* ")+"$'('. $'(")$" ")& %2,#2, $"#,+ #, 5$",#'+ #8 $'?)1,!)&+ #, 3#'$" 4&+ #8 ")& &'&8 !&+ +# $1.%&'"&(8#, ")& %& @& '.6 $'(")& , & ,+6 $'(")& &!"#,+ $'(< !$,+ #8 ")& #")&,)1,!)&+ *)&,&1'"# $'? +1!) $1.%&'"&(1,$!? #,)$2&- (#") $22&,"$ '6 $'(")& , 1!!&++#,+6 +)$-- @& $'($,&)&,&@? 1""&,-? &9!-1(&(8,#%)$4 '. #, ,&!& 4 '.6 (,&!"-? #, '(,&!"-?6 $'? 5,#8 " #, &'&8 " @? +1!) 1.%&'"$" #'6 $'(+)$-- 8,#% %& "# %&6 $'(K$" $-- %&+ 8,#% $'($8"&, +1!) 1.%&'"$" #'6 2$? $'($--#* "# ")& ' +"&,+ #88 ! $" '. ' $'?)1,!) #8)$2&- +# $1.%&'"&(+1!) $''1$- $'(#")&, 5&'+ #'+6 $-$, &+6 $'(--#*$'!&+ *) !) @? $'! &'" 1+"#% #, #")&, * +&6 #8 .)" $'('#" #8 #1'"[6 #1.)" "# @& @? ")&% ,&+2&!" 4&-? 2$ ($'($--#*&(6 $'(*) !) ")&? % .)" @? (1& #1,+& #8 $*6 @&8#,& ")& %$: '. #8 ") + !"6)$4& @&& ' !#%2&--&("# 2$? #, $--#* "# ")&7,&+2&!" 4& ' +"&,+ #88 ! $" '.)&,&6 $'(+1!) #")&, ?&$,-? 1% #, --#*$'!& $+ +)$-- @& $.,&&(12#'6 8 $'? +)$-- @&6 @&"*&& ' ")& +$ (#%% ++ #'&,+ $'(+1!) 5$",#' #, %2,#2, $"#, 12#' %$: '. '. ")& 1.%&'"$" #' $'(")& +$%& $,& $'(+)$-- @&)&,&@? 2&,8&!"-? 4&+"&(' ")& ' +"&,+ #88 ! $" '. ")&)1,!) #,)$2&- #8 ")& &'&8 !& +# $1.%&'"&(6 $'(")& , ,&+2&!" 4& 1!B !&++#,+

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-' 5,#4 (&(' $-+#')$" *)&,&' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !" +)$--6' '' 21,+1$'!&' #8' ")&' 5#*&,+' . 4&'' "# ")&%6' @?' ") +' !"6' ") ':' '' !#'4&' &'' $'(' 8 "" '.' ")$" $'?' 3#'$" 4&6' 1,$!?6' #,')$B' 2&-,?' +)#1-(' ,&!& 4&' $'' 1.%&'"$" #'' #1" #8' ")&' $'(+6' &'&%&'"+6' $'(' &,&(' "$%&'"+6' #,' #")&,' 1'(+' $'(' #' &+6')&,&@?' 4&+"&(' '' ")&%6' +)$--' $'(' %$?' @&' -$*81-' "# $'(' 8#,' ")&' +$ (' #%% ++ #'&,+6' @&8#,&' ")&?' %$:&' ")&' +$ (' 1.%&'"$" #'6' "# ,&$"' $'(' $.,&&' * ")' ")&' 5$",#'' #8' $'?' 3#'$" 4&6' %2,#2, $"#,' #8' $'?' &!"#,?' %2,#2, $"&(' * ")#1" '(#*%&'' #8' $'?' < !$,$.&6' #,' 5$,+#'' #,' < !$,' #8' $'?' #")&,')1,!)6' $+' ")&' $+&' +)$--')$22&'' "#)&6' 8#,' $' 2&,2&"1$-6' ?&$,-?6' #,' #")&,' 5$?%&'' #,' --#*$'!&' "# ")&' +"&,' #,' 1,$"&' #8' +1!)' $1.%&'"&(' 3#'$" 4&6' 1,$!?6' #,')$2&-,?6' $'(') +' 1!!&++#,+6' "# @&' %$(&' '' $--' +1!!&&('.' %&+' @?' +1!)' 5$",#'6' %2,#2, $"#,6' 5$,+#'6' #,' < !$,6' $'(') +' $'(' ")&' +' $'(' &,+' $'(' 1!!&++#,+6' $'(' 8#,' !)$,. '.' $'(' +1@>&!" '.' ")&' %2,#2, $"&' &!"#,?' #,' #")&,')1,!)' #,' < !$,$.&' ")&,&* ")' $'(' ")&,&1'"# '' +1!)' $''&,' $'(' * ")' +1!)' %&(&+6' 8#,' &!#4&,?' ")&,&#8' $+' +)$--' @&' ")#1.)' 8 "' $'(' +1!)' .,&&%&'' %$?' @&' %$(&' * ")' ")&' #,(' &'&,$-' #,' ,(' H#4&,'#,' #,' H#4&,'#,+' #8' 8#,' ")&' %&' @&' '.6' @?' $'(' * ")' ")&' (4 !&' $'(' #'+&'' #8' 9' #,' %#,&' #8' +' $>&+"?;' 5, 4?' #1'! -' '' "&+" 8 &(' 1'(&,' ")&' $'(' +6' '' $+&+' *)&,&' ")&' D ' .;' %#+' 9!&--&'' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' $,&' #,' +)$--' @&' '"&,&+"&(' #,' * ")' $'?' #(&+' 5#- " !' #,' #,2#,$"&6' #,' $'?' #")&,' 5&,+#'' #,' 5&,+#'+6')$4 '.' $'?' +"$"&' #,' '"&,&+"' 5#++&++ #'6' &4&,+ #'6' #,' &%$ '(&,

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$-+# ' $' ("#*$,(+ ")& 21,!)$+ '. #8 $'? $' (+ '"# &9!&('.
")& *)#-& #,"? !,&+6 *)&, @& '. * ") ")& -#!$- % "+ #8
")& +$ (&'&8 !&6 1,$!?6 4 '.6 #,)$2&-,?6 #, '#"6 @1" +# $+
")$" ")& +$%& @& +1$"& ! #'4&' &' "# +1!) #1+& +# "# @& @1 -"6
,&@1 -"6 #, 21,!)$+&($+ $8#,&+$ (6 +1!) ")# "# @& 21,!)$+&(
@& '. #8 ,&&)#-(&'1,&6 #, #2?)#-(#8 '")&, "$'!&6 #, 8#, 8&
#, 4&+6)#-(&' #8 $'? $'#, #, #,(+) 2 @&-#' . ' "# ")& +$%&
&'&8 !&6 1,$!?6 4 '.6 #,)$2&-,? $' (+1!)) !) $'(+ #, 21,N
!)$+&(+)$-- 8#, &4&,6 8,#% $' ($8"&, ")& H,$" $' (#'4&?$'!&
")&,&#8 @& $' (&9&($' ("# $' (H-&@& #8 +1!) &'&8 !&6
4 '.6 1,$!?6 #,)$2&-,?6 "# $-- '"&'"+ $' (51,2#+&+ *)$"N
+#&4&,6 $' (@&)#-(&' $' (&'>#?&(@? +1!) '!1%@&' $' ( ) +

1!!&++#,+' $!!#,(' .-?6' * ")#1'' $'?' !&'!&' #,' E, '' #8' (' C1#(' ($%'1%' $'(' ")&' E)#-&' #,' $'?' 5$,'' #,' 5$,"+' #8' ")&' +$ (' $'(' *) !)' @&8#,&' +1!)' ''&9$" #'' *&,&' #,' *$+' #8' #2?)#-(' &'1,&' +)$--' 8#,' &4&,' 8,#%' $'(' $8"&,' +1!)' ''&9$" #'' @&!#%&' $'(' @&' #8' 2,&&)#-(; &'1,&' ")&' "$"1"&' #8' #,"%$ '6' #,' $'?' #")&,' "$"1"&' #,' $*6' "#' ")&' !#'",$,?' '#"* ")+"$'('.' +1@>&!" '&4&,")&-&++' "#' ")&' $*+' '#*' '' 8#,!&' #,' ")$'' %$?')&,&$8"&,' @&' '' 8#,!&' '' ' 8#,' &9!)$'. '.' #8' H-&@&+

+/ FE #E' .'
H3' /D723 FD'
3 '2140 D#3^
#4' E #47D'
D#D. HDE' 3 '
D&3D#G' 3 '
I# 3DG' D#D^
. HDE' # 3' .'
3"D' 27ID' .'
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<' '(' *)&,&$+' *#' #,' %#,&' &'&8 !&+6' < !$,$.&+6' #,' 1,$! &+' %$?' @&' !#'" .1#1+6' $'(' #8' +1!)' +%$--' 9"&'' $+' ")$'' '&')1,!)' %$?' @&' +188 ! &'' 8#,' ")&' +$%&6' $'(' ")&' 1,&' ")&,&#8' %$?' @&' !#'4&' &'"-?' $""&'(&(' @?' ")&' +$%&' 5$,+#'6' < !$,6' #,' 1,$"&' $'(' '' %$?')$22&'' ")$'' +1!)' &'&8 !&+6' < !$,$.&+6' #,' 1,$! &+' $,&' #,' +)$--' @&' 2&,%$'&'"-?' 1' "&(6' $'(' ?&'' ")&' *)#-&' <$-1&' #8' +1!)' 1' "&(' &'&8 !&+6' < !$,$.&+6' #,' 1,$! &+' %$?' '#'' $%#1''' "#' ")&' !-&$,' ?&$,-?' <$-1&' #8' *#')1'(,&(' 5#1'(+6' $!!#,('.' "#' ")&' <$-1$" #'')&,& 'B@&8#,&' %&'" #'&(' ' @&' '' ")&,&8#,&' (&!-$,&(' $'(' &'$!"&(' @?' ")&' 1")#, "?' $8#,&+$ (')$'' $--' $'(' &4&,?' ")&' -$1+&+' $'(' 5,#4 + #'+' '' ") +' !'' ,&-$" 4&' "#' ")&' $1.%&'" '.' #8' B+ '.-&' &'&8 !&+6' < !$,$.&+6' #,' 1,$! &+6' #,')$2&-, &+6' +)$--' &9"&'(' $'(' @&' !#'+",1&(' "#' &9"&'(' "#' $--' +1!)' 1' "&(' &'&8 !&+6' < !$,$.&+6' $'(' 1,$! &+6' *)&8' ")&' +$%&' (#' '#'' '' ")&' *)#-&' $%#1''' "#' ")&' !-&$,' ?&$,-?' <$-1&' #8' *#')1'(,&(' 5#1'(+' $+' $8#,&+$ (

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< ' '(' @&' '' 81,")&,' &'$!"&(6')$'' 8,#%' $'(' $8"&,' ")&' #%B %&'!&%&'' #8' ") +' !'' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !"66' @?' '+",1%&'' '' E, " '.' 1'(&,' ")&,' #,2#,$"&' &$-6' @?' $'(' * ")' ")&' #'+&'' #8' ")&' #,(' &1N "&'$''' #,' #")&,') &8' H#4&,'#,' #,' H#4&,'#,+' #8' ' ")&' %&' @& '.6' $'(' #8' +' $>&+"?;+' 5, 4?' #1'! -' '' ' '' #1'! -' $++&%@-&(' X 9' $'' -&$+'' !#'+&'" '.[6' $'(' * ")' ")&' #'+&'' #8' ")&' ,!)@ +)#2' #,' +)#2' #8' ")&' 3 #!&+&6' $'(' #8' ")&' ,&+2&!" 4&' 5$",#'' #,' 5$",#'+6' !&," 8 &(' 1'(&,') +' #,' ")&,' $'(' $'(' &$-' #,' $'(+' $'(' &$-+6' $""&+"&(' @?' *#' #,' %#,&' !,&(@-&' E "'&++&+ +1@+!, @ '.' ")&,&1'"#6' "#' (4 (&' $'?' 5$, +)' '' ' ")&' $4&,$.&' $''1$-' <$-1&' *)&,&#8' +)$--' &9!&&(' .)")1'(,&(' 5#1'(+6' $'(' "#' +&2$,$"&' $'(' (+1' "&' 8,#%' +1!)' 5$, +)' $'?' #*'-$'(6' #*'B -$'(+6' 3 +", !"6' 5$,!&-' #,' 5$,!&-+' #8' $'(6' $'(' $--' ")&+6' #%2#+ N "#'' 8#,' ")&+6' 31&+6' $'(' !!-&+ $+" !$-' %#-1%&'"+' *)$"+#&4&,6' 8,#%' +1!)' #*'-$'(6' #*'-$'(+6' 3 +", !"6' 5$,!&-' #,' 5$,!&-+' #8' $'(' $, + '.' #,' "#' $, +&' $'(' 2$?$@-&' "#' ")&' !!-&+ $+" !$-' '!1%@&'' #8' +1!)' 5$, +)6' $'(' ")&'!&8#,")' "#' $''&9' $'(' 1' "&' '' 5&,2&"1 "?6' @?' ")&' +$%&' #,' $ (88&,&'' '+",1%&'"6' $'?' +1!)' #*'-$'(6' #*'B -$'(+6' 3 +", !"6' 5$,!&-' #,' $'(6' $'(' $--' +1!)' ")&+6' #%2#+ "#'' 8#,' ")&+6' 31&+6' $'(' !!-&+ $+" !$-' %#-1%&'"+' *)$"+#&4&,' ")&,&8#,' $, + '.' #,' "#' $, +&6' "#' $'?' #")&,' $(># ' '.' 5$, +)' #,' 5$, +)&+' ")&' $''1$-' $4&,$.&' <$-1&' #8' *) !)' ,&+2&!" 4&-?' +)$--' '#' &9!&&(' *#')1'(,&(' 5#1'(+' ' 5,#4 (&(' '&4&,")&-&++6' ")$'' ")&' $''1$-' <$-1&' #8' $'?' +1!)' 5$, +)' "#' (4 (&(' $+' $8#,&+$ (' +)$--' '#'' @?' +1!)' 3 4 + #'' @&' '' $'?' $+&' ,&(1!&(' @&-#*' ")&' 1%' #8'),&&')1'(,&(' 5#1'(+

&4 -' '(' 2,#4 (&(' $-+#6' $'(' @&' " &'$!"&(6')$" $'?' +1!)' IH" * F E #'
3 4 + #"' #8' $'?' 5$, +)' +)$--' "$:&' &88&!" $'(' !#%&' '"#' #2&,$" #"'
12#"' ")&' 3&$")' #,' &%#4$-' #8' $'?' 5&,+#"' *)#' +)$--' @&' ")&' '!1,$B' *D23"' .'
@&'" #8' $'?' +1!)' (4 (&(' 5$, +)' $"")&' %&' #8'")&' #%%&'!&%&'" #HI OOD#3!'
#8' ") +' !" #,' $" ")&' %&' *)&"' +1!)' 3 4 + #"' +)$--`@7' %$(&' $+'
$8#,&+$ (6' $+' ")&' $+&' %$?' @&6' $'(' '#" +##'&,' $'(' ")$" ")&"' $'('
8#,' &4&,' ")&,&$8"&,' +1!)' #*'-$'(6' #*'-$'(+6' 3 +", !"6' 5$,!&-' #,'
5$,!&-+' #8' $'(6' $'(' $--' +1!)' ")&6' #%2#+ "#"' 8#,' ")&6' 31&+6'
$'(' !!-&+ $+" !$-' %#-1%&'"+' *)$"+#&4&,' ")&,&8,#%' ,&+2&!" 4&-?'
$, + '.' #,' "#' $, +&6' +)$--' !&$+&' "#' @&' #,' "#' @&' (&&%&(' $' 5$," #,' 5$,"+'
#8' #,' $''&9&(' "#' +1!)' (4 (&(' 5$, +)6' $'(' +)$--' @&!#%&' $'(' @&' $'(' @&'
(&&%&(' $' 5$," #,' 5$,"+' #8' #,' $''&9&(' "#' +1!)' $1.%&'"&(' 5$, +)' #,'
5$, +)&+6' "#' $--' '"&'"+' $'(' 51,2#+&+' *)$"+#&4&,

< '(' @&' " 81,")&,' &'$!"&(')$" " +)$--' $'(' %$?' @&' (O O E'
-$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' * ")' +1!)' 22,#@$" #"' $'('
#'+&'" $'(' " +1!)' $''&,' $+' $,&')&,& 'B@&8#,&' -$+" %&'" #'&(6' 3"D 7DO%OD'
"#' (4 (&' $'(' +&2$,$"&' ")&' H-&@&' @&-#'. '.' "#' $'?' +1!)' 5$, +)' +#' 7 #4 #4'3'
(4 (&(6' $'(' "#' .,$'" $' 5#," #"' #8' +1!)' H-&@&' "#' ")&' '!1%@&'" #8' +2/ E"DE'E'
+1!)' (4 (&(' 5#," #"' #8' ")&' 5$, +)' #,' #8' +1!)' $1.%&'"&(' 5$, +)6'
$+' ")&' ;$+&' %$?' @&6' $+' $'(' 8#,' $' H-&@&' 8#,' +1!)' 5$ +)6' +1@>&!"6'
)#*&4&,6' "#' ")&' $*+' '#*' " 8#,!&' #,' ")$" %$?')&,&$8"&,' @&' "
8#,!&' 8#,' ")&' 9!)$'.&' #8' H-&@&+' >' $'(' ")$" $--' +1!)' 3 4 + #'+' #8'
H-&@&+' +)$--' @&' .##(6' 8 ,%6' $'(' 4$- (" $*' $'(' ")$" +1!)' 5$," #,'
5$,"+' #8' +1!)' H-&@&' $+' +)$--' @&' +#' $''&9&(' +)$--' @&' $-*$?+' (&&%&('
$'(' "$:&"' "#' @&' ")&' H-&@&' #,' H-&@&+' #8' +1!)' 5$, +)' #,' 5$, +)&+' "#'
*) !)' ")&' +$%&' +)$--' @&' +#' $''&9&(' $'(' ")$" ")&' '!1%@&'" #,'
'!1%@&'"+' #8' +1!)' 5$, +)' #,' 5$, +)&+' "#' *) !)' ")&' +$%&' +)$--' @&'
+#' $''&9&(' +)$--')#-(' $'(' &'>#?' +1!)' 5$," #,' 5$,"+' #8' +1!)' (4 (&('
H-&@&6' @&' '.' +#' $''&9&(6' " $+' 81--' $'(' $%2-&' $' $''&,' "#' $--'
'"&'"+' $'(' 51,2#+&+' $+' 8' +1!)' 5$," #,' 5$,"+' #8' +1!)' H-&@&')$(' @&&"'
$-*$?+')&-(' *")' $'(' &'>#?&(' $+' ")&' H-&@&' @&-#'. '.' "#' +1!)' 5$, +)'
#,' 5$, +)&+' "#' *) !)' ")&' +$%&' +)$--' @&' +#' $''&9&(6' $'?' $*' #,'
V+$.&' "#' ")&' !#'",$,?' '#"* ")+"$'(' '.

' '(' @&' " 81,")&,' &'$!"&(')$" *)&'&4&,' $'?' 5$",#"' #8' I2/G 2#E!'
$'?' 5$, +)' +#' "#' @&' (4 (&(' $+' $8#,&+$ (' +)$--')$22&"' "#' @&' $' '#,6' (O O 33DDE!'
(#"6' 1'$" !6' #,' &%&' #4&,"6' " +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' ..7..;78'
H1$,($'6' #%% ""&&6' #,' 1+@$'(' #8' &4&,?' +1!)' 5$",#"' "#' !#'+&'"
"#' +1!)' 3 4 + #"' $+' $8#,&+$ (' 8#,' +1!)' 5$",#'6' $'(' "#' !&," 8?') +6')&,6'
#,' ")&,' #'+&'" 1'(&,') +6')&,6' #,' ")&,' $'(' $'(' &$-' #,' $'(+'
$'(' &$-+6' 8#,' +1!)' 5$",#'6' *)#' +)$--' @&' @#1'(' ")&,&@?' " +1!)'
$''&,6' $'(' ")&' +$%&' +)$--' @&' $+' 4$- (' $'(' &88&!"1$-6' $+' 8')&' #,' +)&'
)$(' @&&"' #8' 81--' .&6' #,' +#1'(' '(6' #,' &%&' #-&6' $'(')$(' &9B'
2,&++&(' +1!)' #'+&'" $+' $8#,&+$ (

' '(' @&' " 81,")&,' &'$!"&(')$" @&8#,&' $'?' +1!)' 3 4 + #"' I#GE' .'
#,' 1.%&'"$" #"' #8' $'?' 5$, +)' #,' 5$, +)&+' $+' -$+" $8#,&+$ (' +)$--' @&' +2/ E"DE'3 'OD'
%$(&' $'(' !#'!-1(&(6' ")&' #1'(+' #8' +1!)' 5$, +)' #,' 5$, +)&+' +)$--' @&' . /E3' 2EHD/^
$+!&,"$ '&(' @?' '+",1%&'" " E, " '.' " %$'&,' 8#--#*' '.' X")$" +' 32 #DG!' 2#G'
"#' +$?6[' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !"6' @?' '+",1%&'" " B 2C' 2#G'
E, " '.' 1'(&,' ")&,' &$-6' +)$--' $'(' %$?' +&' #1" $'(' (&+!, @&' ")&' 323D O D#3' .'
#1'(+' #8' +1!)' 5$, +)&+6' $'(' ")&' +&4&,$-' #*'-$'(+' #,' #")&,' 5$,!&-+ 27 I D'3/2#E^
#, O 33DG'3' /G' D#3D

3D#2#3!' Z" '
E"277 H #. / O'
/' 273D/' E2 O D

#,' 3&'#% '$" #'+' #8' $'(+' *) !)' +)$--' @&' !#%2, +&(' * ") '' +1!)'
5$, +)&+' ,&+2&!" 4&-?' $'(' $' #2?' #8' +1!)' '+",1%&'' +)$--6' * ") ''
#1,"&&'' 3$?+' 8,#%' ")&' 3$"&' ")&,&#86' "#.&")&,' * ")' $' $2' $'('
1,4&?' #8' ")&' +$ (' 5$, +)&+' ,&+2&!" 4&-?6' $'(' $' "$"&%&'' #8' ")&'
$''1$-' <$-1&' #8' ")&' +$%&6' $'(' #8' +1!)' 5$," #,' 5$,"+' "#' @&' +#'
+&2$,$"&(' $'(' (+1' "&(' 8,#%' +1!)' (4 (&(' 5$, +)' $+' $8#,&+$ (' @&'
",$'+% ""&(' "#' ")&' #,(' &1"&'$'' #,' #")&,') &8' H#4&,'#,' #,'
H#4&,'#,+' #8' ' '' #1'! -6' $'(' ")&' #,(' &1"&'$'' #,' #")&,'
) &8' H#4&,'#,' #,' H#4&,'#,+' '' #1'! -' +)$--' !#'8 ,%' #,' $-"&,'")&'
#1'(+' #8' +1!)' 5$, +)' #,' 5$, +)&+' +#' +&'' #1'' $'(' (&+!, @&(' '' +1!)'
'+",1%&''6' $+' ")&' ,!1%+"$'!&+' #8' ")&' $+&' %$?' +&&%' "#' ,&C1 ,&6'
$'(' +)$--' #,(&,' +1!)' '+",1%&'' "#' @&' $-"&,&(' $!!#,('.-?'] 5,#4 (&('
$-*$?+6' ")$"' +1!)' '+",1%&'' +#' $-"&,&(' @?' $'?' +1!)' ,(&,6' #,' 8' '#'
,(&,' +)$--' @&' %$(&' ")&,&12#'' @?' ")&' #,(' &1"&'$'' #,' #")&,'
) &8' H#4&,'#,'#,' H#4&,'#,+' #8' ' '' #1'! -' * ") '' 9' E&&:+'
$8"&,' ")&' 3$"&' #8' ")&' ,$'+% ++ #'' #8' ")&' #2?' #8' +1!)' '+",1%&''
"#' ")&' #1'! -' 88 !&' '' ' " ' ' ")&'' +1!)' '+",1%&''' $+'
#, . '$--?' ",$'+% ""&(6' +)$--' @&' &'"&,&(' '' ")&' &. +",?' #8' ")&' 3 #!&+&6'
X8#,' *) !)' '",?' ")&' 1%' #8') ,"&&'') -- '.+' $'(' #1,B2&'!&6' $'('
'#' %#,&6' +)$--' @&' 2$ ('"#' ")&' &. +",$,6[' $'(' +)$--' $-+#' @&' &',#--&(' ''
")&' #--+' 88 !&' #8' ")&' .)' #1,' #8')$'!&,?' '' '8#,' *) !)'
',#-%&''")&' 1%' #8') ,"&&'') -- '.+' $'(' #1,B2&'!&6' $'(' '#' %#,&6'
+)$--' @&' 2$ (6' #4&,' $'(' $@#4&' ")&' 92&'!& ' 1+1$--?' 2$ ('"#' ")&' -&,:'
8#,' '.,#++ '.' ")&' +$%&

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E #D/E' E"277
2G5 I E3' +/ '%
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' '(' '' #,(&,' "#' 2,&4&'' 3 +21"&+' *) !)' % .)'' $, +&' 12#''
")&' $22#," #' '.' #8' $'?' ,#*'' &'"+6' 5#,"' #,'' &'"+6' 5&'+ #'+6'
5,#!1,$" #'+6' ?'#($-+6' $'(' $-$, &+' 2$?$@-&' "#' ")&' !)##-%$+"&,+' #8'
")&' 3 #!&+$'' !)##-+' @?' ")&' +&4&,$-' '!1%@&''+' #8' $'?' +1!)' (4 (&('
#,' $1.%&''&(' 5$, +)' #,' 5$, +)&+' @&' '' &'$!"&(6')$'' '' +)$--' $'('
%$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !"6' $'('
")&?' $,&')&,&@?' &%2#*&,&(' $'(' (,&!"&(6' "$' +&""-&' $'(' $(>1(.&' ")&'
5,#2#," #'+' #8' ,#*'' &'"+6' 5#,"' #,'' &'"+6' 5&'+ #'+6' 5,#!1,$N
" #'+6' ?'#($-+6' $'(' ")&' $-$, &+' #8' ")&' +$ (' !)##-%$+"&,+' *) !)' ")&'
'!1%@&''+' #8' $'?' +1!)' (4 (&(' 5$, +)' $'(' +1!)' $1.%&''&(' 5$, +)'
#,' 5$, +)&+' $,&' ,&+2&!" 4&-?' "#' 2$?' *) !)' 5,#2#," #'6' @&' '.' +#'
$(>1+"&(' @?' $'' (>1(!$" ' E ," '.' 1'(&,' ")&' &$-' #8' ")&' +$ ('
#%% ++ #'&,+6' $'(' ,&. +"&,&(' '' ")&' &. +"&,' ##:' #8' ")&' +)#2' #8'
")&' 3 #!&+&' *)&,&' '' +1!)' 5$, +)&+' $,&' + "1$"&' ,&+2&!" 4&-?6' +)$--' @&'
")&' 5,#2#," #'' #8' *) !)' ")&' '!1%@&''+' #8' +1!)' (4 (&(' $'(' #8' +1!)'
$1.%&''&(' 5$, +)&+' $,&' ,&+2&!" 4&-?' "#' 2$?6' $'(' +)$--' @&' @ '(' '.'
$'(' !#'!-1+ 4&' 12#'' ")&' +$ (' +&4&,$-' '!1%@&''+' #8' +1!)' (4 (&('
#,' $1.%&''&(' 5$, +)' #,' 5$, +)&+' ,&+2&!" 4&-?6' $'(' ")&' ,&+2&!" 4&'
1!!&++#,+6' $'?' $*' #,' 1+"#%' "#' ")&' !#'",$,?' '#"* ")+"$'('.

#H I O OD#3'
.'G F GDG'
+2/ E"DE'
D#3 37DG' 3 '
/DHD FD' * E^
O I /ED O D#3E'
./ O' #D 3'
I HHDEE /!'
2E' .'+2/ E"'
, 2G' # 3' ODD#'
G F GDG!

' '(' @&' '' 81,")&,' &'$!"&(')$"'' *)&,&' $'?' 5$, +)' +)$--' @&'
(4 (&(' '' %$''&,' $8#,&+$ (6' $'(' ")$'' ")&' '!1%@&''' #8' $'?' +1!)'
(4 (&(' 5$, +)' +)$--' @&' &''"-&(' "#' ,&!& 4&' $'?' 1%' #8' #'&?' 8,#%'
) +' '&9'' 1!!&++#,' '' +1!)' 5$, +)6' '' !$+&' ")&' +$%&')$(' '#'' @&&''
(4 (&(6' #'' $!!#1''' #8' $'?' 51,!)$+&' #8' H-&@&6' #,' (("#'' "#' ")&'
H-&@&6' #,' #8' $'?' 1 -('.+' #,' %2,#4&%&''+' %$(&' #'' ")&' H-&@&' #8'
+1!)' 5$, +)6' #,' $'?' #'&?' 2$ (' @?') %' "#') +' 5,&(&!&++#,' #'' +1!)'
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' 5,#4 (&(' $-*$?+6 $'(' @& " 81,")&,' &'$!"&(')$" *)&,& ")& @"D/D' ++&'" #8 ")& D '.;+ $>&+"?6 + & ,+ #,' 1!!&++#,+6 + "# @& . 4&'' EED#3' .' > E' "# ")& %$: '.' #8 $'? +1!)' 3 4 + #'' #8 $'? 5$, +)' $+ $8#,&+$ (6 #,' "# B 25DE36' E' ")& $''&9 '.' #,' 1' " '.' $ 5$," #,' 5$,"+ ")&,&#8 "# $'? $(># '.' E7D#3' .' 3"D' 5$, +)' #,' 5$, +)&+ $+ $8#,&+$ (6 ")& ++&'" #8 ")& #,(' &1"&'$'" #,' /G' D I ' #")&,') &8 H#4&,'#,' #,' H#4&,'#,+ #8 ' 8#,' ")& %& @& '.' 3D#2#3' 3 ' OD' ")&,&"#6 1'(&,') + #,' ")&,' $'(' $'(' &$- #,' $'(+ $'(' &$-+6 +)$-- "# $-- '"&'"+ $'(' 51,2#+&+ @& $+ .##(6 4$- (6 $'(' &88&!"1$- '' $*' $+ 8 ")& #'+&'" #8 + $>&+"?6 + & ,+ #,' 1!!&++#,+6 *&,& ")&,&1'"# + .' 8 &(' @? &""&,+ 5$"&'" 1'(&,' ")& H,&$" &$- #8 U' 5,#4 (&(' $-*$?+6 ")$" +1!)' #'+&'" #8 ")& #,(' &1"&'$'" #,' #")&,') &8A H#4&,'#,' #,'H#4&,'#,+ ' +)$-- @& &',#--&(' '' ")& #--+ 88 !& #8 ")& .)' #1," #8)$'!&,? '' '"#.&")&,' * ")' ")& '+",1N %&'" %$: '.' $'(' +&"" '.' 8#,")' +1!)' 3 4 + #'' $+ $8#,&+$ (6 8#,' ")& ',#-%&'" #8 *) !)' #'+&'"")& 1" '#8),&&) -- '.+ $'(' 92&'!&6 $'(' '# %#,&6 +)$-- @& 2$ (6 #4&,' $'(' $@#4& ")& 92&'!&+ 1+1$--? 2$ (' "# ")& '.,#++ '.' -&,.:' 8#,' ")& +$%&

< ' '(' @& " 81,")&,' &'$!"&(')$" *)&,& $'? 5&,+#'' #,' (O O EE #' 5&,+#'+6 #")&,' ")$'' ")& ,#*'6 #,'$'' ,!)@ +)#2 #,' +)#26 +)$-- @& D/E' O26 C26 5$",#'' #,' 5$",#'+ #8 $'? 4 '.' #,' 5$, +)' +# "# @& (4 (&(' $+ $8#,&B +$ (6 #,' +)$-- @& &'" "-&(B"# 2,&+&'" $ -&,.' ")&,&"# 12#'' $'? <$!$'!? 2$",#'+ '' #,' 1,'' ")&,&#86 "+)$-- $'(' %$? @& -$*81- 8#,' ")& +$ (' #%% ++#'&,+ HD/32 # (2EDE ' 1'(&,' ") + !"6 8 ")&? +)$-- ") '.' 8 " +# "# (#6 #1" #8 ")& +1,2-1+ 1'(+ ,&%$ ' '.' '' ")&,' $'(+6 12#'' #@"$ ' '.' ")& #'+&'" #8 +1!)' 5$",#'' #,' 5$",#'+ "# +1!)' 3 4 + #'' #8 $'? +1!)' 5$, +)' $+ $8#,&+$ (6 "# 2$? 1'"# +1!)' 5$",#'' #,' 5$",#'+ +1!)' 1% #,' 1%+ #8 #'&? $+ ")& +$ (' #%% ++#'&,+ +)$-- ") '.' 8 " $+ $ #%2&'+$" #'' 8#,' ")& 3 % '1" #'' #8 ")& $''1$- <$-1& #8 +1!)' 4 '.' #,' 5$, +)6 +# ")$" +1!)' 1% #,' 1%+ #8 #'&? +)$-- '' '# $+& &9!&&(' *&-4& &$,+ 51,!)$+& #8 ")& $''1$- 1% @? *) !)' ")& '!#%& #,' $''1$- <$-1& #8 +1!)' (4 (&(' 5$, +)' +)$-- @& ,&(1!&(' @? %&$'+ #8 $'(' '' !#'+&C1&'!& #8 +1!)' 3 4 + #'' $+ $8#,&+$ (' ' $'(' +1!)' 1,$ #,' 1%+ #8 #'&? +)$-- @& $'(' @&!#%& 4&+"&(' '' $'(' +&""-&(' 12#'' ")& +$%& 5&,+#'' #,' 5&,+#'+6 $'(' 8#,' $'(' 12#'' ")& +$%& V+&+6 +"$"&+6 ,1+"+6 $'(' % "$" #'+6 $'(' +1@>&!" "# ")& +$%& 5#*&,+6 #'("#'+6)$,.&+6

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(O O E' E #D/E' O 26' A7&',$A" #' '' /32 #' (2EDEF'

< ' ' (' @&' " 81,") &,' &' $!"&(')$" *) &,&' $ ' ?' 5&,+# '' #,' 5&,B' +# ' +' ") &,' ") $ '' ") &' ,# * ' 6' #,' $ '' ,!) @ +)#2' #,' +)#26' +)$--' @&' 5$",# ' +' #8' $ ' ?' 4 ' . ' #,' 5$, +)' +#' "#' @&' $1 . %& ' "&(' @? ") &' ' ' &9$" # '' ") &,&"#' #8' $ ' ?' 5$," #8' $ ' ?' +1 !)' (4 (&(' 5$, +)6' #,' +)$--' @&' & ' " "-&(' "#' 2,&+& ' " $' -&, :' ") &,&"#' 12# '' $ ' ?' <$!$ ' ! ?' #,' 1, '' ") &,&#86' " +)$--' $ ' (' %$?' @&' -$ * 81-' 8#,' ") &' +$ (' #%% ++ # ' &,+' 1 ' (&,' ") +' !"6' $ ' (' ") &?' $,&') &,&@?' (,&!"&(' $ ' (' ,&C1 ,&(6' $ ' (' +)$--' @&' & ' " "-&(' "#' (&%$ ' (6' "$: &6' $ ' (' ,&!& 4&' 8,#%' +1 !)' 5$",# '' #,' 5$",# ' +' #8' $ ' ?' +1 !)' $1 . %& ' "&(' 5$, +)' #,' 5$, +)&+' +1 !)' 1%' #,' 1%+' #8' # ' &?' $+' +)$--' @&' %1"1$--?' $. ,&&(' 12# '' @?' $ ' (' @&" * && '' +1 !)' #%% ++ # ' &,+' $ ' (' ") &' ,&+2&!" 4&' 5$",# '' #,' 5$",# ' +6' #,6' '' !$+&' #8' 3 +$. ,&&%& ' " @&" * && '' ") &%6' +)$--' @&' 8 9&(' $ ' (' (&"&,% ' &(' @?') ,&&' ,@ ",$"#,+6' "#' @&' !) #+& '' '' ") &' +$%&' $ ' ' &,' $+' '' ") &' $+&' #8' ,@ ",$"#,+' $22# ' "&(' 8#,' ") &' &""-&%& ' " #8' 3 88&,& ' ! &+' @&" * && '' ") &' +$ (' #%% ++ # ' &,+' $) (' 5$," &+' $22-? ' . ' 8#,' ") &' 51, !) $+&' #8' 5&,N 2&"1 " &+' 1 ' (&,' ") +' !"6' $ ' (' 1 ' (&,' $ ' (' +1@>&!" "#' ") &' - :&' & . 1-$N " # ' +6' # 8$,' $+' ") &' +$%&' $,&' $22- !$@-& ' *) !)' 1%' #,' 1%+' #8' # ' &?' +#' "#' @&' ,&!& 4&(' @?' ") &' +$ (' #%% ++ # ' &,+' +)$--' @&' $((&(' "#' ") &' . & ' &,$-' 1 ' (+' #8' ") &' +$ (' #%% ++ # ' &,+' 8#,' ") &' 51,2#+&+' #8' ") +' !" ' $ ' (' '' (&8$1-" #8' 5$?%& ' " #8' +1 !)' 1%' #,' 1%+' #8' # ' &?' "#' ") &' +$ (' #%% ++ # ' &,+' * ") '' 9' $-& ' ($,' # ' ") +' $8"&,' $' 3&%$ ' (' ") &,&#8' @?' #" !&' '' E , " ' . ' +)$--')$4&' @&& '' %$(&' $ ' (' +&,4&(' 12# '' +1 !)' 5$",# '' #,' 5$",# ' +6' ") &' +$ (' 1%' ; 1%+' #8' # ' &?' +)$--' @&' $ ' (' @&!#%&' $')$, .&' #,' & '' # '' +1 !)' (4# * +# '' #,' # '' ") &' ') &, "$ ' ! &' #8' ") &' +$%&6' $ ' (' @&' 2$ (' $ ' (' 2$?$@-&' "#' ") &' +$ (' #%N % ++ # ' &,+6' * ")' ' "&,&+' ") &,&# ' 6' '' 2, #, "?' "#' $--' #") &,')$, .&+' #,' ' !1%@,$ ' ! &+' 12# '' +1 !)' (4# * +# ' 6

(O O E^ E #D/E' O 26' E I ECD#G' C^ C #3 O D#3' .' (7D/]' 3 ' 2#6' D#D^ . HD' Z "D/D' * F #D' @ /^ E" C'E"27' # 3' "2F%' ODD#' HD7DO/23DG' . /' "/DD' -D2/E

< ' ' (' @&' " &' $!"&(6')$" *) &' &4&,' $ ' ?' &' &8 !&' *) &,&#8' ") &' D ' . ' +)$--' @&' 5$",# ' 6' #,' ") &' .) " #8' 5,&+& ' "$" # '' #,' #--$" # '' *) &,&"#' +)$--' @&' '' $ ' ?' ,!) @ +)#26' +)#26' #,' #") &,' 3 . ' "$,?6' #,' '' $ ' ?' ! !-&+ $+" !$-' #,2#,$" # ' 6' +)$--6' $8"&,' ") &' 2$++ ' . ' #8' ") +' !"6' @&!#%&' 4# (' '' $ ' ?' $ ' ' &,' *) $"+#&4&,6' $ ' (' ") $" " +)$--' $22&$,' "#' ") &' #%% ++ # ' &,+' 1 ' (&,' ") +' !"6' @?' ") &' &," 8 !$"&' #8' ") &' ,('$,?6' ") $" 3 4 ' &' E#,+)' 2' +)$--' '#")$4&' @&& '' !&-&@,$"&(' ") &,&' '' 8#,' ") &'),&&' &&$,+' '&9" 2,&!&(' . ' ") &' ,+' 3$?' #8' 1 " ' &' ") #1+$ ' (' &')1 ' (,&(' $ ' (' ' (' ") ,?B") ,&&6' ") &' $ ' (' '' +1 !)' $+&' " ' +)$--' @&' -$ * 81-' 8#,' ") &' +$ (' #%% ++ # ' &,+6' 8' ") &e7' +)$--' +#' ") ' ' :' 8 "6' @?' $ '' +" ",1%& ' " 1 ' (&,") & ' #,2#,$"&' &$-6' "#' (,&!" ") $" ") &' 22# ' "%& ' "6' 5,&+& ' "$" # ' 6' #,' #--$" # '' #8' $ ' ?' -&, :' "#' +1 !)' &' &8 !&' +)$--' @&' +1+2& ' (&(' 1 ' "-' +1 !)' #%% ++ # ' &,+' +)$--' ") ' ' :' 8 "' @?' $' - :&' ' +",1%& ' " #") &,* +&' "#' (,&!" ' $ ' (' ") &' %&$ ' " %&6' $ ' (' 8#,' $ ' (' (1, ' . ' +1 !)' 5&, #(' $+' +1 !)' ' &' &8 !&' +)$--' ,&%$ ' ' 4$!$ ' " ") &' +6' 5,#8 "+' $ ' (' %#-1%& ' "+' *) $"+#&4&,' @&-# ' . ' ' . ' #,' $22&,N "$ ' ' . ' ") &,&"#6' $ ' (' $--' ,&' " +' $,&')$, .&' $ ' (' &%$?')$4&' $! ! ,1&(' (1&' + ' !&' ") &' +$ (' &' &8 !&' %$?')$4&' @&!#%&' 4#(' $+' $8#,&+$ (6' +)$--' @&' 4&+"&(' '' $ ' (' ,&!& 4&(' @?' ") &' +$ (' #%% ++ # ' &,+' 1 ' (&,' ") +' !"6' "#' @&' @? ") &%' $22- &(' "#' ") &' @1 -(' . ' #,' ,&2$, ' . ' #8' ") &')$, !)' $ ' (

3 "DE' 2#G' +/ . 3E' .' E I H"' D#D. HD' 3 ' FDE3' #' (O O E^ E #D/E

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$ ' (' H-&@&' #1+&' '' "@&' +$ (' &'&8 !&' $ ' (' 8' ")&' ,!1%+"$'!&+' #8' +1!)' &'&8 !&' +)$--' '#"' ,&C1 ,&' +1!)' 22- !$" #'' #8' ")&' +$ (' 1 ' (+6' ")&'' "#' @&' 2$ (' '"#' ")&' .&'&,$-' 1 ' (' 1 ' (&,' ")&' (% ' +",$" #'' #8' ")&' +$ (' #%% ++ #'&,+' $ ' (' ")&' +$ (' #%% ++ #'&,+' +)$--')$4&' $--' $ ' (' &4&,?' ")&' - :&' &%&(&+' 8#,' ")&' &!#4&,?' #8' J 1()' ")&+6' 5,#8 "+6' $ ' (' %#-1%&'"+6' $ ' (' $--' ,,&$,+' ")&,&#86' $+' $ ' ?' -&,:' 8 -- '.' +1!)' &'&8 !&' % .)" #,' *#1-(')$4&6' $ ' (' +)$--' @&' 8#,' $-- +1!)' '"&'"+' $ ' (' 51,2#+&+' '' ")&' 5-$!&' $ ' (' "&$(' #8' +1!)' $' -&,:' $ ' (' '' +)$--' $ ' (' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' $ ' (' ")&' ,!)@ +)#2' #,' +)#2' $++#! $"&(' * ")' ")&%6' 21,+1$''' "#' ")&' 5,#N 4 + #'')&,& 'B$8"&,' !#'"$ '&(6' '' $ ' ?' $+&' *)&,&' ")&' 2 , "1$-' E$'"+' #8' $ ' ?' &'&8 !&' +#' 1 ' 8 --&(' $+' $8#,&+$ (' +)$--' $22&$,' "#' ,&C1 ,&' ")&' 22# '"%&''' #8' $'' 88 ! $" '.' ' +"&,6' +#' "#' (&!-$,&6' $ ' (' "#' $22# ''' +1!)' %#(&,$"&' " 2&' (' #,' $-$,?' "#' @&' 2$ (' "#' +1!)' 88 ! $" '.' ' +"&,' $+' ")&?' +)$--' ")' ' :' 2,#2&,6' $ ' (' ")&,&12#'' ")&' +)#2' #8' ")&' 3 #!&+&' +)$--' $22# ''' $ ' (' - !&'+&' $' 1,$"&' 8#,' ")&' 5&,8#,%$' !&' #8' !!-&+ $+" !$-' 31" &+' * ") '' +1!)' &'&8 !&' 8#,' $ ' (' (1, '.' +1!)' 5&, #(' $+' ")&' +$%&' +)$--' ,&%$ '' 1 ' 8 --&(' ' $ ' (' '' !$+&' ")&' 2 , "1$-' E$'"+' #8' +1!)' &'&8 !&' +)$--' '#"' $22&$,' "#' ,&C1 ,&' ")&' 22# '"%&''' #8' +1!)' 1,$"&6' ")&'' $ ' (' '' +1!)' $+&6' $ ' (' 8#,' $ ' (' (1, '.' +1!)' 5&, #(' $+' $8#,&+$ (6' ")&' 1,&' #8' #1-+6' $ ' (' $--' $ ' (' &4&,?' ")&' #!!$+ #'$-' 31"?' #,' 31" &+' * ") '' +1!)' &'&8 !&' +#' ,&%$ ' '.' 1 ' 8 --&(' $+' $8#,&N +$ (6' +)$--' @&' !#%% ""&(' "#' ")&' '!1%@&''' #,' 88 ! $" '.' ' +"&,' #8' +#%&' $(># ' '.' 5$, +)6' "#' @&' ,&%1'&,$"&(' @?' $' %#(&,$"&' " 2&' (' #,' $-$,?6' '' - :&' $ ''&,' 8 9&(' @>' ")&' +$ (' #%% ++ #'&,+' $ ' (' ")&' ,!)@ +)#2' #,' +)#2' $++#! $"&(' * ")' ")&%6' +1!)' '!1%@&''' #,' ' +"&,' "#' @&' '#%' '$"&(' $ ' (' $22# ''"&(' @?' ")&' ,(' '$,?6' $ ' (' *)#%' +1!)' ,(' '$,?' +')&,&@?' ,&C1 ,&(' "#' '#%' '$"&' $ ' (' $22# ''' $"' ")&' &C1&+"' #8' ")&' #%% ++ #'&,+' 1 ' (&,' ") +' !"6' 1 ' (&,' +1!)' &.1-$N "#'+' $+')&' %$?' ")' ':' 8'' "#' %$:&' $ ' (' ")&' ,(' '$,?' +)$--' $ ' (' +')&,&@?' ,&C1 ,&(6' *)&'' ")&,&1'"#' ,&C1 ,&(' @?' ")&' #%% ++ #'&,+' 1 ' (&,' ") +' !"6' "#' .,$''' +1!)' &," 8 !$"&' $+' $8#,&+$ (' '' $-- +1!)' $+&+' $+' $8#,&+$ (' $ ' (' ")&' +$ (' #%% ++ #'&,+' +)$--6' 8,#%' $ ' (' #1"' #8' ")&' ")&+6' 5,#8 "+6' $ ' (' %#-1%&'"+' #8' +1!)' &'&8 !&')&,&@?' 4&+"&(' '' ")&%6' 2$?' "#' ")&' 1,$"&' +#' $22# ''"&(' $+' $8#,&+$ (6' #,' "#' ")&' '!1%@&''' #,' 88 ! $" '.' ' +"&,' "#' *)#%' ")&' 1,&' #8' #1-+' $ ' (' #!!$+ #'$-' 31"?' +)$--')$4&' @&&'' !#%% ""&(6' $+' ")&' !$+&' %$?' @&6' +1!)' " 2&' (' #,' $-$,?' $+' %$?')$4&' @&&'' 8 9&(' $ ' (' (&"&,% '&(' '' %$' '&,' $8#,&+$ (

< ' 5,#4 (&(' $-*$?+6' $ ' (' @&' "' &'$!"&(6')$"' *)&'+#&4&,' ")&' +$ (' #%% ++ #'&,+' 1 ' (&,' ") +' !"' +)$--' 2,#2#+&' "#' +1+2&' (' ")&' 22# '"%&''6' 5,+&''$" #'6' #,' #--$" #'' "#' $ ' ?' &'&8 !&6' 1 ' (&,' ") +' !"' 5#*&,')&,& 'B@&8#,&' 4&+"&(' '' ")&%6' #,' #8' ,&%#4 '.' +1!)' 1+2&' + #'' 8' '' +)$--')$4&' "$:&'' 2-$!&6' ")&?' +)$--' '' &' ")&,' #8' +1!)' $+&+' . 4&' #" !&' #8' +1!)' '"&' #'' "#' ")&' ,!)@ +)#2' #,' +)#2' #8' ")&' 3 #!&+&' '' *) !)' +1!)' &'&8 !&' +)$--' @&' + "1$"&6' 1 '-&++')&')$22&'' "#' @&' #'&' #8' ")&' +$ (' #%% ++ #'&,+' $ ' (' +1!)' ,!)@ +)#2' #,' +)#2' +)$--' @&' $++#! $"&(' * ")' ")&' +$ (' #%% ++ #'&,+' '' (&"&,% '&' ' ' 12#'' ")&' 5,#2#+&(' ,&%#4 '.' #,' +1+2&' + #'' #8' +1!)' 1,$"&' $+' $8#,&+$ (6' $ ' (' +)$--' $ ' (' %$?' 4#"&' 12#'' $--' T1&+" #'+' ,&-$" '.' "#' ")&' $ ' ?' +1!)' 8')&' *&,&' #%% ++ #'&,6' $ ' (' @&' (&&%&(' $ ' (' "$:&'' "#' @&' 8#,' +1!)' 51,2#+&' #, 51,2#+&+

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< ' 5,#4 (&(' $-+#6 $'(' @& " 81,")&,' &'$!"&(6)$" '' $'?
$+& '' *) !)' ")& +$ (' #%% ++ #'&,+ +)$-- (,&!" ")$" ")& 22# '"N
%&'"6 5,&+&'"$" #'6 #,' #--$" #'' #8 $ -&,.' "# $'? &'&8 !& +)$-- @&
+1+2&'(&(6 $ 81-- "$"&%&'" #8 ")& &$+#'+ #'' *) !)' +1!)' 3 ,&!" #''
*$+ 8#1'(&(6 !#%2, + '.' ")& +&4&,$- 5$," !1-$,+ #8 ")& 9"&'" #"
+1!)' &'&8 !&6 "+ $''1$- <$-1&6 ")& %#1'" #8 ")& 5#21-$" #'6 ")&
1%@&,' #8 5,#"&+"$'"+ ,&+ ('.' *") '' "6 ")& #'("#'' #8 ")&
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'.' "# "6 +)$-- @& &'"&,&(' '' $ ##:' "# @& :&2" 8#,' ")$" 51,2#+&6 $'('
2,&+&,4&(' $%#'.' ")& &!#,(+ #8 ")& #%% ++ #'

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V' "&(' D '.(#%6 '' ")& 8")' &$,' #8 ")& & .'' #8 +' -$"& $>&+"?
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+)#2+ $,& $1")#, L&(' $'(' &%2#*&,&(' "# 2$? #4&,' !&,"$ '' 1%+
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'' ' 8#,' !&,"$ '' 51,2#+&+ ")&,& '' $-+# %&'" #'&(' ' @& " ")&,&N
8#,& &'$!"&(')$" $-- $'(' &4&,? 5$?%&'" %$(& "# ")& #%% ++ #'&,+
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$'(' +2&! 8 &(' @? +$ (' ,&! "&(' !"6 * ")' ,&+2&!" "# 5$?%&'"+ "# +$ ('
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$'(' &88&!"1$- "# $-- '"&'"+ $'(' 51,2#+&+ ' $'(' +1!)' 1,$+6 *)&'' 2$ (6
+)$-- @& $22- &(' @? ")& #%% ++ #'&,+ #8 ") + !" 8#,' ")& 51,2#+&+
'' +$ (' ,&! "&(' !" %&'" #'&(6 '' ")& +$%& $''&,' $+ 8 +1!)' 5$?N
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,1 "+6 $'(' $+ 8 ") + !")$(' '#" @&&'' 2$++&(

> IED CI/^ H"2EDG O6 (O O EE #^ D/E 3 ' OD 3"D > IED . =DE GD#HD

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$8#,&+$ (6 "# $+!&,"$ ' ")& %#1'' $+ *&-- #8 ")& $''1$- &'' $+ #8 ")& $''1$- #, #")&, &'&*$- '& #, '&+ $'(&&+ *) !))$4& @&&' 2$ (6 $.,&&("# @& 2$ (6 #, 2$?$@-&6 #, *) !) #1.)" "#)$4& @&&' 2$ (' ,&+2&!" #8 ")& +$ ($'(+ $'(5,&% +&+ 8#, $'((1, '. +1!) 5&, #(S$+ $8#,&+$ (6 $!!#,('. "# ")& "),&"#8#,& $!!1+"#%&(#(& #8 ,&'&* '. +1!) &$+& #, '"&,&+"6 $'("# "$:& $'(&+" %$"& $!!#,('.-? ")& ?&$,-? 4&,$.& #8 +1!) $''1$- #, #")&, '& #, '&+ > *) !) +$ (?&$,-? 4&,$.& #8 +1!) &'&*$- '&+6 "#.&")&, * ")$'('$(("#' "# ")& +$ ($''1$- &'' #, &'"+ "),&"#8#,& ,&+&,4&($'(2$?$@-& $+ $8#,&+$ (#1" #8 ")& +$ ($'(+ $'(5,&% +&+6 +)$-- @& ")& %#1'' #8 $''1$- &'' "# @& ,&+&,4&($'(%$(& 2$?$@-& ' $'(@? ")& 3&&(#8 #'4&?$'!& #, 3&% +&)&,& 'B$8"&, %&'" #'&(6 +1@>&!" #'-? "# +1!) 22,#4$- $+)&,& 'B$8"&, %&'" #'&(6 $'(+1@>&!" "# <$, $" #' $!!#,('. "# ")& 5, !& #8 E)&$" #, $"+6 $+)&,& 'B$8"&, $-+# 2,#4 (&(' $'(8 " +)$--)$22&' ")$" '# '& #, '&+)$4& @&&' 2$ (#, 2$?$@-& 8#, ,&'&* '. $'? +1!) &$+& #, '"&,&+" $+ $8#,&+$ (8#, $'? +1!) 5&, #(6 #, $'? 5$," #8 +1!) 5&, #(6 2,&!&('. ")& &,4 !& #8 +1!) #" !& $+ $8#,&+$ (6 ")$" ")& ' &4&,? +1!) $+& +)$-- @& -$*81- 8#, ")& +$ (#%% ++ #'&,+ "# "$:& $'(&+" %$"& ")& ?&$,-? 4&,$.& #8 +1!) &'&*$- '&+ $'(&&+ $!!#,('. "# +1!) 5,#2#,N "#' #8 ")& %2,#4&(?&$,-? <$-1& $+ %$?6 @? ")& 1+"#% #8 ")& 3 #!&+& #, #")&, 2, "1$- 5,#%#" #' #, - . ' "? 1'(&, *) !) ")& +$ ($'(+ $'(5,&% +&+ $,&)&-(6)$4& (&"&,% '&(")& %#1'' #8 '&+ 2$?$@-& ' ,&+2&!" #8 $'(+ $'(5,&% +&+)&-("),&1'(&, - :& &'1,& $'(3&% +&6 X+1!) %2,#4&(?&$,-? <$-1& "# @& $+!&,N "$ '&(@? $-- +1!) E $?+ $'(&$'+ $+ ")& +$ (#%% ++ #'& + +)$-- ") ': 8 "6 #, @? ")& ++1 '. #8 $ #%% ++ #' $+ -$+" $8#,&+$ (6 $'(+1@>&!" "# ")& - :& 1-&+ $'(&.1-$" #'+ $+ +1!) #%% ++ #' -$+" $8#,&+$ (6[#, @? ,&8&,&'!& "# $-- ")& ,!1%+"$'!&+ #8 ")& $+&6 $'("# ")& %#1'' #8 ")& &'$'';+ @&'&8 ! $- '"&,&+" ' +1!) $'(+ $'(5,&% +&+6 $!!#,('. "# ")& , 3 +!,&" #'6 "# 8 96 $+!&,"$ '6 $'((&N "&,% '& ")& ?&$,-? 4&,$.& #8 +1!) &'&*$- '&+ $'(&&+ ' *) !) +$ (?&$,-? 4&,$.&6 &+" %$"&(6 $+!&,"$ '&(6 $'((&"&,% '&(' $'? +1!) E $? #, $''&, $+ $8#,&+$ (6 +)$--6 "#.&")&, * ")$'('$(("#' "# ")& $''1$- &'' #, &'"+ "),&"#8#,& ,&+&,4&($'(2$?$@-& #1" #8 ")& +$ ($'(+ $'(5,&% +&+6 @& ")& %#1'' #8 $''1$- &'' "# @& "),&,&$8"&, ,&+&,4&($'(%$(& 2$?$@-& #1" #8 ")& +$ ($'(+ $'(5,&% +&+ "# +1!) ,!)@ +)#2 #, +)#2 #, #")&, !!-&+ $+" !$- 5&,+#'6 $'( )+ $'(")&, 1!!&++#,+ ,&+2&!" 4&-?6 ' $'(@? ")& 3&&(#8 #'4&?$'!& #, 3&% +&)&,& 'B$8"&, %&'" #'&(6 +1@>&!" #'-? "# +1!) 22,#4$- $+)&,& 'B$8"&, %&'" #'&(6 $'(+1@>&!" "# <$, $" #' $!!#,('. "# ")& 5, !& #8 E)&$" #, $"+ $+)&,& 'B$8"&, 2,#4 (&(

+ #DE "# OD ' 5,#4 (&(6 $'(@& " 81,")&, &'$!"&(')$" ' ")& $+& H OCI3DG # #8 &$+&+ 8#, 4&+ ")& +$ (#%% ++ #'&,+ 1'(&, ") + !" +)$-- 4&,$.&31,$B !#%21"& ")& ?&$,-? 4&,$.& #8 ")& &'&*$- '&+ $'(&&+ ' +1!) "#" # FDE ")&% +)$-- +&&% >1+" * ") ,&8&,&'!& "# ")& $4&,$.& 31,$" #' #8 4&+ $'(@&'&8 ! $- '"&,&+"+

) 3 HD 3 ' OD ' '(@& " 81,")&, &'$!"&(6)$" *)&' $'(+# +##' $+ . 4&'7'#7 B .$X $''1$- &'' +# "# @& ")&,&$8"&, ,&+&,4&($'(%$(& 2$?$@-& '> 7#'&,+ q $'(+ $'(5,&% +&+ "# +1!) ,!)@ +)#2 #, +)#2 #,

#,' #")&,' !!-&+ $+" !$-' 5&,+#'6' $'(') +' 1!!&++#,+6' +)$--')$4&' @&&''
$+!&,"$ '&(' $'(' (&"&,% '&(' @?' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +'
!"6' @?' $'?' #8' ")&' E$?+' #,' &$'+')&,& 'B@&8#,&' %&'" #'&(6' ")&'
+$ (' #%% ++ #'&,+' +)$--' $'(' ")&?' $,&')&,&@?' (,&!"&(' "#' '#" 8?' @?'
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+ $+" !$-' 5&,+#'' 1'(&,' *)#%' ")&' +$ (' $'(+' $'(' 5,&% +&+' $,&' #,'
+)$--' @&')&-(' $+' $8#,&+$ (6' $'(' "#' ")&' +$ (' &'$''' #,' &++&&' #8' ")&'
+$ (' $'(+' $'(' 5,&% +&+' *)#' +)$--')$4&' $22- &(' "#' 21,!)$+&' ")&'
+$%&' $+' $8#,&+$ (6' ")&' %#1''' #8' ")&' +$ (' $''1$-' &''' +#' $+!&,N
"$ '&(' "#' @&' ")&,&$8"&,' ,&+&,4&(' $+' $8#,&+$ (6' "#.&")&,' * ")' ")&'
%#1''' #8' 51,!)$+&' #'&?6' "#' @&' @?' ")&' +$ (' #%% ++ #'&,+' !#%N
21"&(' $+')&,& 'B$8"&,' %&'" #'&(' $'(' ,&C1 ,&(6' "#' @&' 2$ (' @?' ")&' +$ ('
&'$''' #,' &++&&' 8#,' ")&' #'4&?$'!&' #,' 3&% +&' #8' ")&' +$ (' $'(+'
$'(' 5,&% +&+' $+' $8#,&+$ (

<' '(' @&' '' 81,")&,' &'$!"&(')$'' *)&'&4&,' $'?' &'$''' D#2#3E' .'
#,' &'$'"+6' &++&&' #,' &++&&+6')#-('.' #,' *)#' +)$--' $'' $'?' %&' 2#GE' FDE3DG'
)&,&$8"&,')#-(' %%&($"&-?' 8,#%' $'(' 1'(&,' ")&' +$ (' #%% ++ #'&,+'
1'(&,' ") +' !'' $'?' $'(+6' 5,&% +&+6' #,' &,&("$%&'"+')&,&"#B' +#'&,+=" qAA'
8#,&' @&-#'. '.' #,' *) !)' +)$--')&,&$8"&,' @&-#'.' "#' $'?' +)#2, !:' 32]D'7]D'+/ '
1' "&(' #,')&,&$8"&,' "#' @&' 1' "&(' @?' 4 ,"1&' #8' ") +' !'' "#' $'?' #")&,' HDDG #4E'
,!)@ +)#2, !:' #,' +)#2, !:6' $'(' *) !)' $'(+6' 5,&% +&+6' $'(' &,&N
("$%&'"+6' #,' ")&' &4&,+ #'' ")&,&#86' +)$--')$4&' @&&'' ",$'+8&,,&(' "#'
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(&+ ,#1+' #8' 21,!)$+ '.' ")&' &&' %2-&' $'(' ')&, "$'!&' #8' $'(' '' ")&'
+$ (' $'(+' $'(' 5,&% +&+6' +1!)' &'$''' #,' &++&&' #,' &++&&+' %$?6' ''
+1!)' $'(' ")&' - :&' $''&,' $+')&,& 'B@&8#,&' %&'" #'&(' * ")' ,&+2&!'' "#'
$'(+' $'(' 5,&% +&+')&-(' %%&($"&-?' 1'(&,' $'?' ,!)@ +)#2' #,'
+)#26' '#" 8?' +1!)') +' #,' ")& ,' 3&+ ,&' "#' ")&' +$ (' #%% ++ #'&,+6'
)#' +)$--' $'(' %$?' $'(' ")&?' $,&')&,&@?' &%2#&,&(6' @?' $--' #,' $'?'
#8' ")&' E$?+' $'(' &$'+' $8#,&+$ (6' "#' $+!&,"$ '' ")&' %#1''' #8' ")&'
$''1$-' &''' "#' @&' ,&+&,4&(' $'(' %$(&' 2$?$@-&' '' $'(' @?' ")&' 3&&('
#8' #'4&?$'!&')&,& 'B$8"&,' %&'" #'&(6' ' ")&' +$%&' $'(' ")&' - :&'
$''&,' $'(' $!!#,('.' "#' ")&' - :&' 4&,$.&+' $'(' 5,#2#," #'+6' $'('
+1@>&!'' "#' ")&' - :&' 5,#4 + #'+6' $+' $,&')&,& 'B@&8#,&' %&'" #'&(' $'('
2,#4 (&(' * ")' ,&+2&!'' "#' $'(+' $'(' 5,&% +&+')&-(' %%&($"&-?'
8,#%' $'(' 1'(&,' $'?' ,!)@ +)#2' #,' +)#2' $+' $8#,&+$ (' *) !)'
&'"6' *)&'' +#' $+!&,"$ '&(' @?' ")&' +$ (' #%% ++ #'&,+' $+' $8#,&+$ (6'
+)$--' @&' ")&' %#1''' #8' ")&' $''1$-' &''' "#' @&' ,&+&,4&(' $'(' %$(&'
2$?$@-&' "#' ")&' +$ (' #%% ++ #'&,+' $'(' ")&,' 1!!&++#,+' '' $'(' @?'
+1!)' 3&&(' #8' #'4&?$'!&6' +1@>&!'' #'-?' "#' +1!)' 22,#4$-' $+')&,& 'N
$8"&,' %&'" #'&(6' $'(' "#' +1!)' <$, $" #'' $+' %$?' @&' %$(&' '' ")&'
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5&, #(' #8' &4&'' &$,+6' $!!#,('.' "#' ")&' 5,#4 + #'+')&,& 'B$8"&,' %&'N
" #'&(' ' $'(' ")&' %#1''' #8' +1!)' &'"6' *)&'' +#' $+!&,"$ '&(' $+' $8#,&N
+$ (6' +)$--' ")&,&12#'' @&' '#" 8 &(' @?' $' #" !&' '' E , " ' . ' @?' ")&' +$ ('
#%% ++ #'&,+' "#' ")&' &'$''' #,' &++&&' *)#' +)$--')$4&' $22- &(' "#'
21,!)$+&' ")&' +$ (' $'(+' $'(' 5,&% +&+' $+' $8#,&+$ (6' "#.&")&,' * ")' ")&'
%#1''' #8' 51,!)$+&' #'&?6' "#' @&' !#%21"&(' @?' ")&' +$ (' #%% +N
+ #'&,+' $+')&'& 'B$8"&,' %&'" #'&(6' ,&C1 ,&(' "#' @&' 2$ (' @?' +1!)' &'$'''
#,' &++&&' 8#,' #,' #'' $!!#1''' #8' ")&' 3&&(' #8' #'4&?$'!&' #8' ")&' $'(+'
$'(' 5,&% +&+' +#')&-(' @?') %' $+' $8#,&+$ (

< ' 5,#4 (&(' $-*$?+6')$"' '' &$!)' $'(' &4&,?' $+&' #8' +1!)7 51,!)$+&' $+' $8#,&+$ (6' @&8#,&' +1!)' 51,!)$+&' +)$--' @&' !#%2-&"&(6' ")&' +$ (' #%% ++ #'&,+' +)$--' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(' "#' '#" 8?' '' E, " ' .' "#' ")&' #,(' &1"&'$'' #,' #")&,') &8' H#4&,'#,' #,' H#4&,N '#,+' #8' 2E ' 8#,' ")&' %&' @& ' .' '' #1'! -' ")&' &,%+' $'(' 5$,N " !1-$,+' #8' +1!)' 2,#2#+&(' 51,!)$+&6' ")&' 51,!)$+&' 1'&?' "#' @&' 2$ (] '' ,&+2&!"' ")&,&#87' $'(' ")&' $''1$-' &'' "#' @&' ")&,&$8"&,' ,&+&,4&(' 8,#%' $'(' #1"' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+' +#' "#' @&' 21,!)$+&(6' "#.&")&,' * ")' ")&' %#1''#8' ")&' $''1$-' &'' $'(' ")&' $4&,$.&' $''1$-' '&' 8#,' &'&*$-' ")&,&"#8#,&' 2$?$@-&' '' ,&+2&!"' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+6' $'(' $+!&,"$ '&(' $+' $8#,&+$ (' $'(' '#' +1!)' 51,!)$+&' +)$--' @&' !#%2-&"&(' 1'"-' ")&' +$ (' #,(' &1"&'$'' #,' #")&,') &8' H#4&,'#,' #,' H#4&,'#,+' #8' ' '' #1'! -' +)$--' + .' 8?') +' 22,#4$-' ")&,&#8

D/OE' .'C/ ^ C EDG' +I/^ H"2ED' .' +D/CD3I 3 DE' 3 ' OD' EIO5DH3' 3 ' CC/ F27' .'3"D' /G' DI3D#2#3

< ' '(' @&' ''81,")&,' &'$!"&(')$"' *)&'&4&,' ")&' %#1''' #8' ")&' $''1$-' &'' +#' "#8' @&' ")&,&$8"&,' ,&+&,4&(' $'(' %$(&' 2$?$@-&' 8#,' $'(' #1"' #8' ")&' +$ (' $1(+' $'(' 5,&% +&+' "#' +1!)' ,!)@ +)#2' #,' +)#26' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' $'(') +' 1!!&++#,+6' #,' "#' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !"6' $+' ")&' $+&' %$?' @&6' +)$--')$4&' @&&'' $+!&,"$ '&(' $'(' (&"&,% '&(' #' @?' $'?' #8' ")&' E$?+' $'(' &$'+' $8#,&+$ (6' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !"6' $'(' ")&?' $,&')&,&@?' (*&!"&(6' 8' +#' ,&C1 ,&(' @?' +1!)' &'$'' #,' &++&&6' &'$''+' #,' &++&&+6' @?' E, " ' .' 1'(&,') +' #,' ")&,' $'(' #,' $'(+' +#' "#' (#6' "#' .,$''' "#' +1!)' &'$'' #,' &++&&6' &'$''+' #,' &++&&+6' $' &," 8 !$"&' 1'(&,' ")&,' &$-6' +"$" '.' ")&' &,%+' #8' 1!)' 51,!)$+&6' $'(' ")&' %#1''' #8' ")&' +$ (' 51,!)$+&' #'&?' "#')&' 2$ (' $+' $8#,&+$ (6' $'(' #8' ")&' $''1$-' &'' "#')&' ,&+&,4&(' $'(' %$(&' 2$?$@-&' '' $'(' @?' ")&' +$ (' 3&&(' #,' 3&&(+' #8' #'4&?$'!&')&,& 'B$8"&,' %&'' #'&(' ' *) !)' 1%' +#' $+!&,"$ '&(' $'(' %&'' #'&(' $+' +1!)' 51,!)$+&' #'&?' '' $'(' @?' ")&' +$ (' &," 8 !$"&' +1!)' &'$'' #,' &++&&' +)$--' X 8')&' +)$--' ") ' :' 8 '' "#' #%2-&"&' +1!)' 51,!)$+&[2$?' #,' !$1+&' "#' @&' 2$ (' '"#' ")&' $' :' #8' ' "#' ")&' ,&(' '' #8' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !"6' 1'(&,' $' (+"' '!' $'(' +&2$,$"&' !!#1''6' "#' @&' 8#,' ")$' 51,2#+&' #2&'&(' '' ")&' ##:+' #8' ")&' +$ (' $':6' "#' @&' !$--&(' ")&' 5&,2&"1 "?' 51,!)$+&' 1'(' !!#1''6' *") '' ")&' 5&, #(' #8' 9' $-&'($,' #'')+' $8"&,' ")&' + .' ' .' #8' ")&' $ (' &," 8 !$"&' $'(' ")&,&12#'6' 8' ")&' +$ (' $'(+' $'(' 5,&% +&+' +#' "#' @&' 21,!)$+&(' +)$--6' 2,&4 #1+-?' "#' +1!)' 51,!)$+&6')$4&' @&&'' ",$'+8&,,&(' "#' $'(' @&!#%&' 4&+"&(' '' ")&' +$ (' #%% ++ #'&,+' @?' 4 ,"1&' #8' ")&' 5,#4 + #'+' #8' ") +' !"6' ")&'' $'(' '' +1!)' $+&6' #'' ")&' 5,#(1!" #'' "#' ")&' +$ (' #%% ++ #'&,+' #8' ")&' &!& 2'' #8' ")&' $+) &,' #,' $+) &,+' #8' ")&' +$ (' ' 8#,' ")&' %#1''' #8' +1!)' 51,!)$+&' #'&?' %&'' #'&(' $'(' +2&! 8 &(' '' $'(' @?' +1!)' &," 8 !$"&6' ")&' +$ (' #%% ++ #'&,+' +)$--' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' '' +1!)' $''&,' $+&' 'B@&8#,&' 2,#4 (&(' $+' "#' ")&' 9&!1"#'' #8' 3&&(+' @?' ")&%6' "#' &9&!1"&6' +&$-6' $'(' (&- 4&,' $' 3&&(' #8' #'4&?$'!&' "#' +1!)' &'$'' #,' &++&&' #8' ")&' && %2-&' $'(' ')&, "$'!&' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+6' *)&'' ")&' +$%&' +)$--' @&' "&'(&,&(' ,&,&' 8#,' 9&!1N " #'' @?' ")&' +$ (' &'$'' #,' &++&&6' 1'"#' $'(' "#' ")&' V+&' #8' +1!)' &'$'' #,' &++&&6') +' & ,+' $'(' ++ .'+6' $+')&' #,' ")&?' +)$--' $22#''"6' +1@>&!"' "#' +1!)' $''1$-' &'' $+' $8#,&+$ (' $'(' 8' ")&' +$ (' $'(+' $'(' 5,&% +&+' +#' "#' @&' 21,!)$+&(' +)$--' $'' ")&' %&' #8' +1!)' 51,N !)$+&' @&-#'.' "#' #,' @&')&-(' 1'(&,' $'?' ,!)@ +)#2' ' +)#2' #,

#")&, !!-&+ $+" !$- 5&,+#'6 ")&' $'(' +1!) $+& #' ")& 5,#(1!N
"#' @? ")& +$ (&'$' #, &++&& "# ")& +$ (,!)@ +)#2 #,
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")& %#1' #8 +1!) $' '1$- &' "# @& ,&+&,4&($'(%$(& 2$?$@-&
$'(@? ")& +$ (3&&(#8 #'4&?$'!&6 $'(+2&! 8? '. ")&
%#1' #8 51,!)$+& #'&? "# @& 2$ (8#, +1!) 51,!)$+& $+ $8#,&N
+$ (6 $'(12#' 5,#(1!" #' #8 +1!) &!& 2" #8 ")& +$ ($+) &, #,
$+) &,+ 8#, +1!) 51,!)$+& #'&? $+ $8#,&+$ (6 +1!) ,!)@ +)#2 #,
+)#2 #, #")&, !!-&+ $+" !$- 5&,+#' +)$-- ('( )& $'(")&? + $'(
$,&)&,&@? ,&C1 ,&($'((,&!"&("# &9&!1"&6 +&$-6 $'((&- 4&, $ 3&&(
#8 #'4&?$'!& #8 ")& && %2-& $'('), "$'!& #8 ")& +$ ($'(+
$'(5,&% +&+ "# +1!) &'$' #, &++&&6 *)&' ")& +$%& +)$-- @&
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$8#,&+$ ($'(8 +1!) ,!)@ +)#2 #, +)#2 #, #")&, !!-&+ $+" !$-
5&,+#' +)$--6 #' ")& 5,#(1!" #' #8 +1!) #" !& #, &," 8 !$"& $'(
&!& 2" $+ $8#,&+$ (6 ,&81+& #, '&.-&!' "# &9&!1"& +1!) 3&&(#8 #'N
4&?$'!& *)&' "&'(&,&(8#, 9&!1" #' $+ $8#,&+$ (6 8#, ")& 2$!& #8
*# $-&'($, #'")+ $8"&, +1!) &'(&, +)$--)$4& @&&' %$(& $+
$8#,&+$ (6 ")&'6 12#' +$" +8$!"#,? 5,##8 @& '. %$(& "# ")& +$ (#%N
% ++ #'&,+ #8 +1!) &81+$- #, &.-&!"6 @? 88 ($4 "# @& +*#, @&8#,&
$'?R1(.&6 1,,#.$"&6 < !$, H&'&,$-6 $+"&, #, $+"&, 9"L$#,('$,?
)$'!&,?6 #, R1+" !& #8 ")& 5&$!&6 *) !) 88 ($4 #, $") ")&?
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+ #'&,+6 +)$-- $'(%$? @& -$*81- 8#, ")& +$ (#%% ++ #'&,+6 $'(
")&? $,&)&,&@? &%2#*&,&($'(,&C1 ,&(6 "# &9&!1"&6 +&$-6 $'((&- 4&,
")& +$ (3&&(#, 3&&(+ #8 #'4&?$'!& ")& $%& #8 $'(#' @&)$-8
#8 ")& +$ (,!)@ +)#2 #, +)#2 #, #")&, !!-&+ $+" !$- 5&,+#' +#
,&81+ '. #, '&.-&!" '. "# &9&!1"& ")& +$%& $+ $8#,&+$ (6 $'("# $88 9
")& #,2#,$"& &$- #8 ")& +$ (#%% ++ #'&,+ "# +1!) 3&&(#, 3&&(+6
$'("# !&," 8? ")& $1+& #8 ")&, +# &9&!1" '. ")& +$%& @? E, '.
$" ")& ##" #8 #, #' ")& $!: #8 ")& +$ (3&&(#, 3&&(+ $'(+1!)
9&!1" #' ")& +$ (3&&(#, 3&&(+ @? ")& +$ (#%% ++ #'&,+
+)$-- @& $+ 4$- ($'(&88&!"1$-6 "# $-- '"&'"+ $'(51,2#+&+ *)$"+#&4&,6
$+ 8 ")& +$ (3&&(#, 3&&(+)$(@&&' (1-? &9&!1"&(@? ")& +$ (
,!)@ +)#2 #, +)#2 #, #")&, !!-&+ $+" !$- 5&,+#'6 21,+1$'!& #8
")+ !"

< 5,#4 (&($-*$?+6 $'(@& 81,")&, &'$"!&( )$" ")& =DH 327E #
&! "$-+ $'? +1!) 3&&(#8 #'4&?$'!& +)$-- 8#, $-- 51,2#+&+ *DDGE .
*)$"&4&, @& (&&%&(!#'!-1+ 4& 4 (&'!& #8 ")& ,1") #8 ")& $!"+ (#FD62#HD
")&,& +$"&(H #H7 I E FD!

< 5,#4 (&($-*$?+6 $'(@& 81,")&, &'$!"&( )$" ")& "D 2FD/24D
+$ (#%% ++ #'&,+ +)$-- $'(")&? $,&)&,&@? (,&!"&(6 $" ")& &C1&+"
#8 & ")&, 5$,"?6 "# '+&, #, !$1+& "# @& '+&,"&(&$!) $'(&4&,?
")& +$ (3&&(#, 3&&(+ #8 #'4&?$'!& $ "$"&%&' #8 ")& $4&,$.& OD #ED/3DG #
5, !& #8 E)&$" #, $"+ X*) !)&4&, #8 ")& *# ")&? +)$-- !#'+ (&, 3"D (#FD6
$+ ")& #,'2, '! 2$--? .,#*' ' ")& #1'"? #, 3 +", !" *)&,& +1!)
$'(+ $,& +"1$"&[8#, ")& 5&, #(#8 &' &$,+ %%&($"&-? 2,&N
!&('. ")& ,+" 3$?#8 '&9" @&8#,& ")& &,4 !& #8 +1!)
@? +1!) &'$' #, &++&& $+ $8#,&+$ (6 !$-!1-$"&(12#' ")& &"1,'+

U K B (2C

$(4&," L&(' ")&' ' " K (1, '.' +1!)' 5&, #(' #8' &' &$,+6' *) !)' $4&,$.&' 5, !&' ")&' +$ (' #%% ++ #'&,+' $,&')&,&@?' ,&C1 ,&(' $'(' &%2#*&,&(' "#' !$-!1-$"&' $'(' $+!&,"$ ' 8,#%' +1!)' &"1,'+' $+' $8#,&+$ (

' (I#3D/ ' C2/3' 3 ' OD' GD7%D/DG' 3 %' 3"D' E" C' /' 3"D' (O O E' E #D/E'

' 5,#4 (&(' $-*$?+6' $'(' @&' ' 81,")&,' &'$!"&(')$" ")&' +$ (' &'$'' #,' &++&&' +#' 21,!)$+ '.' ")&' &&' %2-&' $'(' ')&, "$'!&' $'(+' $'(' 5,&% +&+' $+' $8#,&+$ ('+)$--' +&$-' $'(' (&- 4&, 7' #1'"&,2$," #,' #1'"&,2$,"+' #8' +1!)' 3&&(' #,' 3&&(+' #8' #'4&?$'!&6' #'&' 5$,' *)&,&#8' +)$--' @&' (&- 4&,&(' "#' ")&' +$ (' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' #,' "#' ")&' +$ (' #%% ++ #'&,+6' $+' ")&' $+&' %$?' @&6' "#' *)#%' ,&+2&!" 4&-?' ")&' +$ (' $''1$-' &'' +)$-- @&' +#' ,&+&,4&(' $'(' %$(&' 2$?$@-&' $+' $8#,&+$ (

*DDGE' 3 ' OD' D#/ 77DG!' 2#G' (D43 . H23D /D4 E3D/DG

' '(' 2,#4 (&(' $-+#6' $'(' @&' ' 81,")&,' &'$!"&(')$" ")&' +$ (' #%% ++ #'&,+6' #,' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ B' $+" !$-' 5&,+#'6' $+' ")&' $+&' %$?' @&6' +)$--6' ' &4&,?' $+&' #8' +1!) 51,!)$+&6' !$1+&' +1!)' 3&&(' #,' 3&&(+' #8' #'4&?$'!&' "#' @&' &',#--&(' ' ")&' #--+' 88 !&' #8' ")&' .)' #1,' #8')$'!&,?' ' X8#,' *) !)' ',#-%&'' $' &&' #8' *#') -- '.+' $'(' 92&'!&' #'-?' +)$--' @&' (&%$'(&(' #,' 2$ ([' $'(' ")&' +$ (' #%% ++ #'&,+' +)$--' ' &4&,?' +1)' $+&' !$1+&' $' &," 8 !$"&6' +2&! 8? '.' ")&' %#1'' #8' ")&' $''1$-' &'' $'(' #8' ")&' $4&,$.&' &'&*$-' '&' ")&,&"#8#,&' 2$ (' #,' 2$?$@-&' #'' ")&' +&4&,$-' !!$+ #'+' #8' ,&'&* '.' ")&' &$+&' ' ")&' +$ (' $'(+' #,' 5,&N % +&+' (1, '.' +1!)' 5&, #(' $+' $8#,&+$ (6' "#' @&' ,&. +"&,&(' ' ")&' &. +",?' #8' ")&' 3 #!&+&' *)&,&' ' ")&' +$%&' +)$--' @&' + "1$"&6' $'(' $-+#' "#')&' &',#--&(' ' ")&' #--+' 88 !&' #8' ")&' .)' #1,' #8')$'!&,?' ' $-#'.' *")' $'(' $''&9&(' "#' ")&' ',#-%&'' 28' ")&' +$ (' 3&7(' #,' 3&&(+' $'' $"'&+"&(' $'(' !#%2$,&(' #2?' #8' *) !)' &," 8 !$"&6' *)&'' &',#--&(' '' ")&' +$ (' #--+' 88 !&' $+' $8#,&+$ (6' +)$--' @&' $'(' @&' (&&%&(' $'(' "$:&'' "#' @&' !#'!-1+ 4&' 4 (&'!&' #8' ")&' ,1")' #8' ")&' +&4&,$-' $""&,+' $'(') '.+' ")&,&' ' !#'"$ '&(' $+' $8#,&+$ (

D#2#3E' # 3' D#3 37DG' 3 ' +D/CD3I 36' I#7DEE' #' + E^ EDEE #' .' .I776' /D#DZDG' D2EDE!' /' I#7DEE' 27' =D^ #DZ2' A #DE' 2/D' C2 GN

' 5,#4 (&(' $-*$?+6' $'(' @&' ' &'$!"&(')$" '#' &'$'' #,' &++&&B' $+B' $8#,&+$ (' +)$--' @&' &'' "-&(' "#')$4&' $'?' +1!)' #'4&?$'!&' #8' ")&' &&' %2-&' $'(' ')&, "$'!&' %$(&' #,' ,$'"&(' "#') %' #,')&,6' #8' *)#+&' &$+&6' 8')#-(' '.' @?' &$+&' 8#,' ")&' &,%' #8' *&'"?B#'&' &$,+6' *&'"?' &$,+' +)$--' '#' @&' ")&'' "#' !#%&' $'(' 1'&92 ,&(6' #,' 8')#-(' '.' @?' &$+&' 8#,' ")&' &,%' #8' #,"?' &$,+6' *)&,&#8') ,"?B' '&' &$,+' +)$--' '#' @&' ")&'' "#' !#%&' $'(' 1'&92 ,&(6' #,' 8')#-(' '.' @?' &$+&' 8@,' *&'"?B#'&' &$,+' #,'),&&' 4&+6' #,' 8#,'),&&' 4&+6' $--' ")&' 4&+' '$%&(' *)&,&' +)$--' '#' @&' ")&'' '' @&' '.6' 1'-&++')&' #,' +)&' +)$--6' 2,&4 #1+' "#' ")&' 9&!1" #'' #8' +1!)' 3&&(' #8' #'4&?$'!&6' 2$?' $--' $'(' &4&,?' ")&' &'&*$-' '&' !1+"#%$@-?' 2$ (' #,' 2$?$@-&' #'' $'(' 8#,' ")&' &'&*$-' #8' +1!)' &$+&' '#,' +)$--' $'?' +1!)' &'$'' #,' &++&&' @&' &'' "-&(' "#' +1!)' #'4&?$'!&' #8' ")&' &&' %2-&' $'(' ')&, "$'!&' 1'-&++' $--' &'' $'(' ,&&$+&' ,&+&,4&(' @?' +1!)' &$+&' +)$--')$4&' @&&' 81--?' 2$ (' $'(' +$" +8 &(

//D2/E' .' =D#3' 3 ' OD' 27E ' C2 G' IC

' '(' @&' ' 81,")&,' &'$!"&(6')$" ' +)$--' $'(' %$?' @&' -$*81-' ' 46H"' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'' "#' *)#%' 51,!)$+&,6')' +' & ,+6' 22#'"&&+6' #,' ++ .'+6' @?' *)#%6' ")&' &'' ,&+&,4' (' @?' ")&' +$ (' 3&&(' #8' #'4&?$'!&' +)$--' @&' 2$?$@-&6' "#' %$:&' $'

CC7 H23 #E' O26' OD' O2GD' -D2/E' 2/ 23 #' .'

a ' $ B ' ' (2C '

$' 22- !$" #' ' E , " ' . ' "# ")& +$ (#%% ++ # '&,+6 $" $'? %& #DZ' /DED/FDG
* ") ' #1, #'")+ $8"&, ")& 92 ,$" #' #8 &4&' &$,+6 "# @& !#%B =D#3!2HH /G '
21"&(8,#% ")& ,+" 3$? #8 ' '&9" 2,&!&(' . ")& 9&!1" #' #8
+1!) 3&&(#8 #'4&?$'!& $+ $8#,&+$ (6 $' (' - :& $''&, $" $'? C/ HD .
%& * ") ' #1, #'")+ $8"&, ")& 92 ,$" #' #8 &4&,? +1@+&C1&' (/#'
5&, #(#8 &4&' &$,+6 +1!) 5&, #(+ "# @& !#%21"&(&$!) 8,#% ")&
&,% '$" #' #8")& 2,&!&(' . 5&, #(6 (1, ' . ")& #'" '1$'!& #8 +1!)
H,$'" $+ $8#,&+$ (6 + . ' 8? ' . ")& 3&+ ,& #8 +1!) ,!)@ +)#2 #, +)#2
#, #")&, !!-&+ $+" !$- 5&,+#'6 51,!)$+&,6) + & ,+6 22# '"&&+6 #,
++ . '+6 "#)$4& ")& $4&,$.& 5, !& #8 E)&$" #, $"+ 8#, ")& &4&'
&$,+ 2,&!&(' . 'C1 ,&(#8 $'($+!&,"$ '&(6 ' #,(&, ")$" ")& $''1$-
&'" ,&+&,4&(' $'(%$(& 2$?$@-& @? +1!) 3&&(#8 #'4&?$'!&
%$? @& 4$, &(#, '!,&$+&(#, (% ' +)&(8#, ")& &'+1 ' . &4&'
&$,+6 ' 2,#2#," #' "# +1!) $4&,$.& 5, !&6 #8 *) !) 22- !$" #' (1&
#" !& ' E , " ' . +)$-- @& . 4&' "# +1!) ,!)@ +)#2 #, +)#2 #,
#")&, !!-&+ $+" !$- 5&,+#'6 #, +1!) 51,!)$+&,6) + & ,+6 22# '"&&+6
#, ++ . '+ $+ $8#,&+$ (6 $+ ")& $+& %$? ,&C1 ,& ' $'(' $+&+ '
*) !) ")& +$ ($'(+ $'(5,&% +&+ +)$--)$4& @&&' 4&+"&(' $'(
",$'+8&,,&("# ")& +$ (#%% ++ # '&,+6 #, ")& +$ ($''1$- &'" +)$--
@& 2$?$@-& "# ")&%6 1 (&, ")& 5,#4 + #'+ #8 ") + !"6 ")&' " +)$-- $'(
%$? @& -$*81- 8#, ")& +$ (#%% ++ # '&,+6 #, +1!) 51,!)$+&,6) +
& ,+6 22# '"&&+6 #, ++ . '+6 $" ")& %&+ $'(' ")& $''&,)&,& 'N
@&8#,& %&'" # '&(6 (1, ' . ")& #'" '1$'!& #8 +1!) H,$'" $+ $8#,&+$ (6
"# !$1+& $ #" !& "# @& +&,4&(6 ' $+&+ #8 $'? +1!) #" !&+ @? ")&
+$ (#%% ++ # '&,+6 12#' +1!) 51,!)$+&,6) + & ,+6 22# '"&&+6 #,
++ . '+6 $'(' !$+& #8 $'? +1!) #" !& @? +1!) 51,!)$+&,6) +
& ,+6 22# '"&&+6 #, ++ . '+6 ")&' 12#' ")& +$ (#%% ++ # '&,+6
+ . ' 8? ' . ")& 3&+ ,& #8 ")& +$ (#%% ++ # '&,+6 #, #8 ")& +$ (
51,!)$+&,6) + & ,+6 22# '"&&+6 #, ++ . '+ $+ ")& $+& %$? @&6
")$" +1!) $4&,$.& 5, !& #8 E)&$" #, $"+ 8#, ")& &4&' &$,+
2,&!&(' . ")& ,+" 3$? #8 ' '&9" @&8#,& ")& &,4 !& #8 +1!)
#" !& %$? @& "$:&' $'($+!&,"$ '&($+ $8#,&+$ ($'(")&,&12#'
' &$!) $'(&4&,? #8 +1!) $+&+ ' +)$-- $'(%$? @& -$*81- 8#,
")& +$ (#%% ++ # '&,+ "# $+!&,"$ ' ' ")& $4&,$.& 5, !& #8 E)&$"
#, $"+ 8#, ")& &,% #8 &4&' &$,+ '&9" 2,&!&(' . ")& ,+"
3$? #8 ' '&9" @&8#,& +1!) 22- !$" #' #, ")& &,4 !& #8 +1!)
#" !& $'(8#, ")$" 51,2#+& "# '#% '$"& $'($22#' " $ 5&,+#'
"# @& ,@ ",$"#, 8#, $+!&,"$ ' ' . ")& +$%& $!!#,(' . "# ' +1!)
,@ ",$"#, +)&,&@? $1")#, L&($'(,&C1 ,&(8,#% ")& ' " '
K ' "# $+!&,"$ ' ")& 5, !& #8 $ $,&- #8 E)&$" #, $"+ 12#'
")& 4&,$.& #8 +1!) &,% #8 &4&' &$,+ 2,&!&(' .6 $'("#
+"$"& $'(8#,") +1!) $4&,$.& 5, !& @?) + &2#," ' E , " ' .
1'(&,) + $'(6 "# @& (&- 4&,&("# ")& +$ (#%% ++ # '&,+
$'(8 ' +)$-- $22&$, ")$" ")& $4&,$.& 5, !& #8 E)&$" X*)&' E)&$"
+)$-- @& "$:&' $+ ")& &$+1,& #8 +1!) &'"[6 #, ")$" ")& $4&,$.&
5, !& #8 $"+ X*)&' $"+ +)$-- @& "$:&' $+ ")& &$+1,& #8 +1!)
&'"[6 8#, +1!) &4&' &$,+ 2,&!&(' .6 + %#,& #, -&++ @? '&
&'") ")$' ")& $4&,$.& 5, !& ")&,&#8 +&" 8#,") ' ")& 3&&(#,
3&&(+ #8 #'4&?$'!&6 ")&' $'(' +1!) $+& +)$-- %#1'" #8 +1!)
$''1$- &'" "# @& 2$ (#1" #8 #, ' ,&+2&!" #8 ")& +$ ($'(+ $'(
5,&%&+ "# +1!) ,!)@ +)#2 #, +)#2 #, #")&, !!-&+ $+" !$- 5&,N
+#'6 #, "# ")& +$ (#%% ++ # '&,+6 $+ ")& $+& %$? @&6 +)$-- @&
!,&$+&(#, (% ' +)&(@? ")& +$ (#%% ++ # '&,+ ' +1!) $''&,
$'(

$'(' "#' +1!)' 9"&'' ")$'' ")&' %#1'' #8' +1!)' $''1$-' &'' 2$?$@-&'
8#,' $'(' (1, '.' ")&' '&9" &'+1 '.' &4&'' &$,+' +)$--' @&$,' ")&' - :&'
5,#2#," #'' "#' ")&' %#1'' #8' ")&' $''1$-' &'' ,&+&,4 &(' $'(' %$(&'
2$?$@-&' #1'' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+' '' +1!)' #, . '$-' 3&&('
#8' #'4&?$'!&' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+' $+' ")&' $4&,$.&' 5, !&'
#8' E)&$'' #,' $"+' $+!&,"$ '&(' $'' ")&' "'&' #8' +1!)' 22- !$" #'' +)$--'
@&$,' "#' ")&' $4&,$.&' 5, !&' ")&,&#8' +&'' 8#,")' '' +1!)' #, . '$-' 3&&('
#8' #'4&?$'!&' $'(' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !'' +)$--'
")&,&12#'6' '' $+&+' *)&,&' ")&' +$ (' $''1$-' &'' +)$--' @&' 2$?$@-&'
"#' $'?' +1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6'
.,$'' "#' +1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6'
51,!)$+&,6') +' & ,+6' 22# '"&&+6' #,' ++ .'+6' #,6' '' $+&+' *)&,&'
")&' +$ (' &'' +)$--' @&' 2$?$@-&' "#' ")&' +$ (' #%% ++ #'&,+6' +)$)6'
8#,' ")&' 51,2#+&' #8' &. +",?' $'(' ',#-%&'' $+')&,& 'B$8"&,' %&'N
"#'&(6' &9&!1"&' $' &," 8 !$"&' 1'(&,' ")&,' &$-6' +&'' '.' 8#,")' ")&'
%#1'' #8' +1!)' ,&4 +&(' #,' '&*' $''1$-' &'' "#' @&' 2$ (' $'(' 2$?N
$@-&' #1'' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+' "#' +1!)' ,!)@ +)#2' #,'
+)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' #,' "#' ")&' +$ (' #%% +N
+ #'&,+6' $+' ")&' $+&' %$?' @&6' $'(' !$1+&' #" !&' #8' #,' $' #2?' #8'
")&' +$ (' &," 8 !$"&' "#' @&' . 4&'' "#' #,' +&,4&(' 12#'' +1!)' ,!)N
@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' 7'(' ")&' 5&,+#'' ,'
5&,+#'+' *)#' +)$--')$4&' 21,!)$+&(' ")&' &&' %2-&' $'(' ')&, "$'!&'
#8' $'(' '' ")&' +$ (' $'(+' $'(' 5,&% +&+6' #,' "#' ")&' 5&,+#'' #,' 5&,N
+#'+' *)#' +)$--')$4&' @&!#%&' 2#++&++&(' #8') +' #,' "- & ,' +"$"&' #,'
'"&,&+'' ")&,& '6' $'(' +)$--' $-+#' !$1+&' +1!)' &," 8 !$"&' "#' @&' ,&. +N
"&,&(' '' ")&' &. +",?' #8' ")&' 3 #!&+&' *)&,& '' ")&' +$ (' $'(+' $'('
5,&% +&+' +)$--' @&' + "1$"&6' $'(' $-+#' " ' @&' &',#--&(' '' ")&' #--+'
88 !&' #8' ")&' .)' #1,'' #8')$'!&,?' $-#'.' * ")' $'(' $''&9&(' "#'
")&' ',#-%&'' #8' +1!)' 3&&(' #8' #'4&?$'!&' $'(' $' #2?' #8' +1!)'
',#-%&''6' (1-?' !#%2$,&(' $'(' $""&+"&(6' +)$--' @&' !#'!-1+ 4&' 4 N
(&'!&' #8' ")&' %#1'' #8' +1!)' ,&4 +&(' $'(' '&*' $''1$-' &'' $'('
+1!)' ,&4 +&(' $'(' '&*' $''1$-' &'' +)$--' @&' 2$ (' "#' $'(' ,&!& 4&('
@?' +C!)' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' #,' ")&'
+$ (' #%% ++ #'&,+' ,&+2&!" 4&-?6' $+' ")&' $+&' %$?' @&6' 8#,' &4&''
&$,+' 8,#%' $'(' $8"&,' ")&' ,+'' 3$?' #8' $>'' '&9'' @&8#,&' ")&' &,N
4 !&' #8' +1!)' 8#" !&6' $'(' 1'' -' +1!)' ,&4 +&(' $'(' '&*' $''1$-' &''
+)$--' $8"&,*$,(+6' 12#'' $' - :&' 22- !$" #'6' @&' $.$ '' 4$, &(' $'(' $+!&,N
"$ '&(' $!!#,(' '.' "#' ")&' $4&,$.&' 5, !&' #8' E)&$'' #,' $"+' (1, '.'
")&' &,%' #8' &4&'' &$,+' ")&'' -$+'' 2$+"' $'(' ")&' +&4&,$-' 5$," &+'
$8#,&+$ (' $,&')&,&@?' ,&+2&!" 4&-?' $1")#, L&(' "#' %$:&' +1!)' 81,")&,'
22- !$" #'' 8,#%' %&' "#' %&' $8"&,' ")&' 92 ,$" #'' #8' &4&,?' &4&''
&$,+6' (1, '.' ")&' #'" '1$'!&' #8' +1!)' H,$''6' '' +1!)' $'(' ")&' - :&'
$''&,' $'(' #,%' $+')&,& 'B@&8#,&' (,&!"&(' * ")' ,&+2&!'' "#' ")&'
8 ,+'' 22- !$" #' ' $'(' ")&' #+"+6')$,.&+6' $'(' 92&'!&+' #8' &4&,?'
+1!)' 22- !$" #'6' $'(' #8' 4$,? '.' $'(' ,&B$+!&,"$ ' '.' ")&' %#1''
#8' +1!)' $''1$-' &''6' +)$--' @&' (&8,$?&(' @?' ")&' 5&,+#'' #,' 5&,+#'+'
*)#' +)$--' %$:&' +1!)' 22- !$" #'' $+' $8#,&+$ (' $'(' $'?' +1!)' ,&N
4 +&(' $'(' '&*' $''1$-' &'' +)$--6' (1, '.' ")&' 5&, #(' *)&'' '' +)$--'
@&' +#' '' 8#,!&6' +"$'(' '' ")&' 5-$!&' #8' ")&' +$ (' #, . '$-' $''1$-' &''
,&+&,4&(' $'(' %$(&' 2$?$@-&' #1'' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+'
12#'' +1!)' 51,!)$+&' #,' #'4&?$'!&' #8' ")&' +$ (' $'(+' $'(' 5,&N
% +&+6' $'(' +)$--' @&' 2$ (' $'(' ,&!#4&,$@-&' $'(' !)$,.&(' $2(' !)$,.&N
$@-&' 12#'' ")&' +$ (' $'(+' $'(' 5,&% +&+6' $'(' $.$ '+'' ")&' 51,!)$+&,6'
) +

' ' $ B ' ' (2C

) +' & ,+6' 22# '"&&+6' #,' ++ . '+6' '' - :&' $' '&,' $+' ")&' +$ (' #, . '$-'
&'" ,&+&,4&(' '' $'(' @?' +1!)' 3&&(' #8' #'4&?$'!&6' $'(' +1@>&!" "#'
")&' +$%&' &.1-$" #'+' $'(' ")&' +&4&,$-' -$1+&+' $'(' 5,#4 + #'+')&,&#8'
+)$--' '' &4&,?' +1!)' $+&' $22-?' $+' 81--?' $'(' &88&!"1$--?' "T' $$?' +1!)'
,&4 +&(' $'(' '&*' $''1$-' &'"6' "#' $--' '"&'"+' $'(' 51,2#+&+6' $+' 8' +1!)'
,&4 +&(' $'(' '&*' $''1$-' &'" *&,&' ")&' $''1$-' &'" #, . '$--?' ,&N
+&,4&(' 12#'' +1!)' 51,!)$+&' '' $'(' @?' ")&' 3&&(' #,' 3&&(+' #8' #'N
4&?$'!&' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+' $+' $8#,&+$ (] 5,#4 (&('
$-*$?+6' ")$" ")&' +$ (' &'" +#' ,&+&,4&(' @?' +1!)' #, . '$-' 3&&(' #8' #'N
4&?$'!&' +)$--' !#'" '1&' "#' @&' 1+&(' $+' ")&' "$'($,(6' @?' ,&8&,&'!&' "#'
*) !)6' "#.&")&,' * ")' ")&' #, . '$-' 5, !&' #8' E)&$" #,' $"+6' ")&' &'"
+' 8,#%' %&' "#' %&' "#' @&' 4$, &(' $+' $8#,&+$ (] 5,#4 (&(' $-+#6'
")$" '' !$+&' $'?' +1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-'
5&,+#'6' &'$'"6' ++ . '&&6' #,' *'&,' #8' +1!)' $'(+' $'(' 5,&% +&+'
21,!)$+&(' $+' $8#,&+$ (6' *)#' *#1-(' ,&+2&!" 4&-?' @&' &'" "-&(' "#' ,&!& 4&'
#,' - $@-&' "#' 2$?' +1!)' ,&4 +&(' #,' '&*' $''1$-' &'" $+' $8#,&+$ (6' +)$--'
@&' (++$" +8 &(' * ")' #,' (+21"&' ")&' %#1'" #8' ")&' $4&,$.&' 5, !&' #8'
#,'' +#' $+!&,"$ '&(' $+' $8#,&+$ (6' #,' ")&' %#1'" #8' $'?' +1!)' ,&N
4 +&(' $'(' '&*' $''1$-' &'" $+!&,"$ '&(' $+' $8#,&+$ (6' " +)$--' @&'
-$*81-' 8#,' +1!)' ,!)@ +)#2' #,' +)#26' #,' #")&,' !!-&+ $+" !$-'
5&,+#'6' &'$'"6' ++ . '&&6' #,' *'&,' #8' +1!)' $'(+' $'(' 5,&% +&+6'
* ") '' '&' $-&'($,' #'")' $8"&,' @& '.' +&,4&(' * ")' +1!)' #" !&' $+'
$8#,&+$ (6' "#' $22-?' @?' 5&" "#'' "#' +1!)' #1," '' +1!)' $''&,' $'('
1'(&,' $'(' +1@>&!" "#' +1!)' &.1-$" #'+' $'(' 5,#4 + #'+' $+')&,& 'N
$8"&,' %&'" #'&(' * ")' ,&+2&!" "#' 3 +21"&+' $+' "#' ")&' %#1'" #8' $'?'
51,!)$+&' #'&?6' #,' $'?' #'", @1" #'' ")&,&"#6' #,' '' ,&+2&!" ")&,&#86'
"#' @&' 2$ (' @?' $'?' &'$'"6' $'(' +1!)' #1," %$?' 4$,?' ")&' %#1'" #8'
+1!)' ,&4 +&(' $'(' '&*' &'" $+' ")&' $+&' %$?' ,&C1 ,&' $'(' 8' ")&'
%#1'" #8' +1!)' ,&4 +&(' $'(' '&*' $''1$-' &'" +)$--' @&' 4$, &(' @?' ")&'
+$ (' #1,"6' 12#'' +1!)' 5&" "#'6' 8,#%6' ")&' %#1'" ")&,&#8' $+!&,"$ '&('
@?' ")&' +$ (' #%% ++ #'&,+6' ")&'' ")&' %#1'" ")&,&#8' +#' $+!&,"$ '&('
$'(' $(>1(.&(' @?' ")&' +$ (' #1," +)$--' @&' ")&' $''1$-' &'" #8' ")&' +$ ('
$'(+' $'(' 5,&% +&+' 8#,' +1!)' 5&, #(' $+' $8#,&+$ (6' $'(' +1@>&!" "#' ")&'
5,#4 + #'+' $'(' &.1-$" #'+' $8#,&+$ (' $+' "#' +1!)' ,&4 +&(' $'(' '&*'
$''1$-' &'"6' $'(' +)$--' @&' '+&,"&(' '' +1!)' &," 8 !$"&' "#' @&' ,&. +"&,&('
$'(' &',#--&(' $+' $8#,&+$ (6' '+"&$('#8' ")&' ,&4 +&(' $'(' '&*' $''1$-' &'"
$+!&,"$ '&(' @?' ")&' +$ (' #%% ++ #'&,+' $+' $8#,&+$ (6' $'(' +"$'(' '' ")&'
5-$!&' #8' ")&' +$%&' "#' $--' '"&'"+' $'(' 51,2#+&+' 2,#4 (&(' ")$" $'?'
5$,"?' #,' 5&,+#'' +#' 2&" #' '.6' $'(' 8$ - ' '' +1!)' 5&" #'6' +)$--' 2$?'
$--' ")&' #+"+' '' ,&-$" #'' ")&,&"#

' '(' @&' "81,")&,' &'$!"&(')$" " +)$--' $'(' %$?' @&' -$*81-' &CD#HDE' .'
8#,' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !" "#' (&(1!" $'(' @&' 2$ (6' E" CE' 2#G'
#1" #8' ")&' %#1'" #8' +1!)' 51,!)$+&' #'&?' 2$ (' 8#,' ")&' 51,!)$+&' (O O EE #^
#8' ")&' &&' %2-&' $'(' ')&, "$'!&' #8' $'(' '' $'?' +1!)' $'(+' $'(' D/E' 3 ' OD' GD^
5,&% +&+6' +1!)' 1%' #,' 1%+' #8' #'&?' $+' +)$--' @&' '&!&++$,?' 8#,' GIH3DG' ./ 0'
(&8,$? '.' ")&' #+"+' #,' 92&'!&+' '&!&++$, -?' #,' 2,#2&,-?' '!1,,&(' @?' +I/H"2ED'
")&' +$ (' #%% ++ #'&,+6' #,' @?' +1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,' B #D6
!!-&+ $+" !$-' 5&,+#'6' '' $'(' $@#1" #,' '' ,&+2&!" #8' $'?' +1!)' 51,!)$+&'
$'(' #'4&?$'!&' #8' ")&' &&' %2-&' $'(' ')&, "$'!&' #8' $'(' '' ")&'
+$ (' $'(+' $'(' 5,&% +&+' ' $'(' 12#'' ")&' 5,#(1!" #'' #8' $' &," 8 !$"&6'
+ . '&(' #" @&)$-8' #8' "- &' +$ (' #%% ++ #'&,+6' +2&! 8? '.' ")&' %#1'"
#8' +1!)' #+"+' $'(' 92&'!&+' '!1,,&(' @?' +1!)' ,!)@ +)#2' #,' +)#2'

0' H' #,

%% ' $ B ' ' (2C !

#,' #")&,' !!-&+ $+" !$-' 5&,+#'6 #,' ")&' +$ (' #%% ++ #'&,+6 "' +)$--'
$'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' H#4&,'#,+' $'(' 3 ,&!"#,+' #8' ")&' +$ ('
$':' #8' ' '"#' *)#+&' $'(+' ")&' +$ (' 51,!)$+&' #'&?' +)$--'
)$4&' @&&'' 2$ (' $+' $8#,&+$ (6' $'(' ")&?'$,&')&,&@?' (,&!"&(6' %%&($"&-?'
")&,&12#'6' * ")#1"' 81,")&,' ,(&,' #,' 'C1 ,?6' "#' 2$?' #1"' #8' +1!)'
51,!)$+&' #'&?' "#' ")&' +$ (' #%% ++ #'&,+6' 8#,' (&8,$? '.' $--' +1!)'
#+"+' $'(' 92&'!&+6' ")&' %#1''' +#' +2&! 8 &(' '' +1!)' &," 8 !$"&'
) !)' 5$?%&''' $'(' &," 8 !$"&' +)$--' @&' ,&!& 4&(' $'(' $--#&(' "#' +1!)'
H#4&,'#,+' $'(' 3 ,&!"#,+' #8' ")&' +$ (' $':' #8' ' '' ")&' !!#1''
#8' +1!)' 51,!)$+&' #'&?6' $+' $' +188 ! &''' 3 +!)$,.&' $'(' !C1 ""$'!&'
8#,' ")&' %#1''' ")&,&#8

' #' CC7 H2^ 3 #'. /' +I/^ H"2ED' .' +D/^ CD3 I 3 DE!' CC7 H2#3' 3 ' GDC E 3' 2' I 0' 3 ' GD^ ./26' &CD#HDE' .' 2EDD/32 33 ' P%' D/ O E!' 2 0 ' .' "D' GDH7 #D' 3"D' + I /H"2ED!' 3"D' &CD#HDE' 3C' OD' GD^ G I H3DG' 3"D/D^ ./ 0

< ' '(' @&' "' &'$!"&(6')$"' '' $--' $+&+' #8' 22- !$" #'+' 8#,'
")&' 51,!)$+&' #8' 5&,2&"1 " &+' 1'(&,' ") +' !"6' ")&' 22- !$''' +)$--'
(&2#+ '' #,' +&!1,&' '' +1!)' $''&,' $+' ")&' +$ (' !!-&+ $+" !$-' #%% +N
+ #'&,+' +)$--' $22# '' +1!)' 1%' #8' #'&?' $+' ")&' +$ (' 2%% ++ #'&,+'
+)$--' ") ' :' '&!&++$,?' "#' (&8,$?' ")&' 92&'!&+' *) !)' ")&' +$ (' #%% +N
+ #'&,+' %$?' '!1,' '' $+!&,"$ ' '.' ")&' &,%+' #8' ")&' 51,!)$+&' 8#,'
*) !)' +1!)' 22- !$" #'' +)$--' @&' %$(&' $'(' '' !$+&' +1!)' 22- !$''
+)$--' (&!- '&' !#%2-&" '.' +1!)' 51,!)$+&6' +1!)' 92&'!&+' $+' $8#,&+$ ('
+)$--' @&' (&(1!"&(' 8,#%' $'(' #1"' #8' ")&' #'&?' +#' (&2#+ "&(' #,' +&!1,&(6'
$'(' ")&' 1,2-1+6' 8' $'?6' ,&81'(&(' "#' +1!)' 22- !$''' $'(' '' !$+&'
+1!)' 22- !$''' +)$--' !#%2-&"&' +1!)' 51,!)$+&6' ")&' *)#-&' 1%' +#'
(&2#+ "&(' #,' +&!1,&(' +)$--' @&' ,&81'(&(6' +1@>&!'' '&4&,")&-&++' "#' +1!)'
*$,(' $+' $'?' ,@ ",$"#,+' $22# '"&(' 1'(&,' ") +' !'' +)$--' %$:&' ''
,&+2&!'' #8' ")&' 92&'!&+' #8' +1!)' ,@ ",$" #'

=23DE' .' + I /^ H"2ED' B #D6

< ' '(' @&' '' 81,")&,' &'$!"&(6')$"' 8#,' ")&' 51,2#+&' #8'
$+!&,"$ ' '.' ")&' ,&+2&!" 4&' %#1''' #8' 51,!)$+&' #'&?' "#' @&' 2$ ('
@?' $'?' +1!)' &'$''' #,' &++&&' .+' $8#,&+$ (' 8#,' ")&' 51,!)$+&' #8' ")&'
&&' %2-&' $'(' ')&, "$'!&' #8' $'(' '' $'?' +1!)' $'(+' $'(' 5,&% +&+'
$+' $8#,&+$ (6' ")&' +$ (' #%% ++ #'&,+' $22# '"&(' 1'(&,' ") +' !'' +)$--'
'C1 ,&' $'(' $+!&,"$ '6' @?' ")&' ++1 '.' #8' $' #%% ++ #'6' * ")' ")&' - :&'
5#*&,+' $'(' 1")#, " &+' $'(' +1@>&!'' "#' ")&' - :&' &.1-$" #'+' $ ' $'?'
#")&,' #%% ++ #'' "#' @&' ++1&(' 1'(&,' ") +' !"6' #,' @?' +1!)' #")&,' E $?+'
$'(' &$'+' $+' "#' ")&%' +)$--' +&&%' 8 "6' ")&' 81--' %2,#4&(' ?&$,-?' <$-1&'
#8' ")&' +$ (' $'(+' $'(' 5,&% +&+6' +1!)' 81--' $'(' %2,#4&(' $''1$-'
<$-1&' "#' @&' "$:&'' $'(' &+" %$"&(' $!!#,('.' "#' ")&' 1+1$-' $'(' $!!1+N
"#%&(' #(&' #8' $+!&,"$ ' '.' $'(' &+" %$" '.' ")&' +$%&' @?' ")&' ,!)B'
@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' #,2#,$" #'' #-&' '' *)#+&'
3 #!&+&' #,' 3 . ' "?' #,' 5,#%#" #'' +1!)' $'(+' $'(' 5,&% +&+' +)$--' @&'
,&+2&!" 4&-?' + "1$"&6' $'(' +)$--' &+" %$"&' $'(' !#%21"&6' $!!#,('.' "#'
")&' @&+'' #8' ")&' ,' D'#*-&(.&6' :--6' $'(' @ - "?6' ")&' <$-1&' #8'
")&' &&' %2-&' $'(' ')&, "$'!&' '' +1!)' $'(+' $'(' 5,&% +&+6'
+1@>&!'' "#' ")&' $''1$-' &'' "#' @&' ,&+&,4&(' $'(' %$(&' 2$?$@-&' ")&,&#1''
@?' ")&' 3&&(' #8' #'4&?$'!&' "#' @&' &9&!1"&(' '' %$''&,')&,&'B@&8#,&'
$22# '"&(' $'(')$4 '.' &+" %$"&(' $'(' !#%21"&(' ")&' <$-1&' #8' +1!)'
&&' %2-&' $'(' ')&, "$'!&6' +1@>&!'' "#' +1!)' &'"6' ")&' +$ (' #%% +N
+ #'&,+' +)$--' (&(1!'' ")&,&8,#%' #1,' 5#1'(+' ' *' #'' ")&'
%#1''' ")&,&#86' $'(' $+!&,"$ ' '$'(' (&!-$,&' ")&' %#1''' #8' +1!)' <$-1 j'
+#' ,&(1!&(' ' $'(' ")&' +$ (' #%% ++ #'&,+' +)$--' $-+#' &+" %$"&' $'(' !#%N
21"&' ")&' <$-1&' #8' ")&' '"&,&+'' '' +1!)' $'(+' $'(' 5,&% +&+' 2#++&++&('
@?' +1!)' &'$'''#,' &'$''"+6' &++&&' #,' &++&&+6' 1'(&,') +6')&,6' #,' ")& ,

$ ʾ $ B ʾ ʾ (2C V

")&'ʾ +1@+ +" '.ʾ &$+&6ʾ $'('+)$--ʾ (&"&,% '&ʾ $'('(&!-$,&ʾ ")&ʾ 3 88&,&'!&ʾ @&"*&&'ʾ ")&ʾ <$-1&ʾ ,&(1!&(ʾ @?ʾ +1!)ʾ 5&,B!&'"$.&ʾ $+ʾ $8#,&+$ (ʾ #8ʾ +1!)ʾ &&ʾ %2-&ʾ $'(ʾ ')&, "$'!&6ʾ +1@>&!"ʾ "#ʾ ")&ʾ &'"ʾ $8#,&+$ (6ʾ $'(ʾ ")&ʾ <$-1&ʾ #8ʾ ")&ʾ '"&,&+"ʾ 2#++&++&(ʾ 1'(&,ʾ +1!)ʾ &$+&6ʾ *) !>ʾ 3 88&,&'!&ʾ +)$--ʾ @&ʾ ")&ʾ %#1'"ʾ #8ʾ 51,!)$+&ʾ #'&?ʾ "#ʾ @&ʾ 2$ (ʾ @?ʾ +1!)ʾ &'$'"ʾ #,ʾ &'$'"+6ʾ &++&&ʾ#,ʾ &++&&+6ʾ 8#,ʾ ")&ʾ 5&,2&"1 "?ʾ "#ʾ @&ʾ $!C1 ,&(ʾ 1'(&,ʾ ")+ʾ !"ʾ $'(ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+ʾ +)$--ʾ '+&,"ʾ +1!)ʾ %#1'"ʾ 'ʾ ")&ʾ &," 8 !$"&ʾ #8ʾ ")&ʾ &,%+ʾ #8ʾ +1!)ʾ 51,!)$+&ʾ "#ʾ @&ʾ @?ʾ ")&%ʾ .,$'"&(ʾ "#ʾ +1!)ʾ &'$'"ʾ #,ʾ &++&&ʾ $+ʾ)&,& 'B@&8#,&ʾ 2,#4 (&(ʾ] 5,#4 (&(ʾ$-*$?+6ʾ ")$"ʾ 'ʾ !$+&ʾ $'?ʾ +1!)ʾ &'$'"ʾ #,ʾ &++&&ʾ +)$--ʾ @&ʾ (++$" +8 &(ʾ * ")ʾ ")&ʾ %#1'"ʾ #8ʾ 51,!)$+&ʾ #'&?ʾ $(>1(.&(ʾ 2$?$@-&ʾ 'ʾ %$''&,ʾ $8#,&+$ (ʾ @?ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+6ʾ ")&ʾ $"'&,ʾ +)$--ʾ @&ʾ ,&8&,,&(ʾ "#ʾ),&&ʾ ,@ ",$"#,+6ʾ #'&ʾ "#ʾ @&ʾ $22# '"&(ʾ @?ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+6ʾ $'#")&,ʾ @?ʾ +1!)ʾ &'$'"ʾ #,ʾ &++&&6ʾ $'(ʾ ")&ʾ "),(ʾ @?ʾ ")&ʾ *#ʾ ,@ ",$"#,+ʾ $2N 2# '"&(ʾ $+ʾ $8#,&+$ (6ʾ * ")ʾ 'ʾ &'ʾ 3$?+ʾ $8"&,ʾ #" !&ʾ 'ʾ E, " '.ʾ "#ʾ @&ʾ . 4&'ʾ @?ʾ +1!)ʾ #%% ++ #'&,+6ʾ &'$'"6ʾ #,ʾ &++&&ʾ 8#,ʾ ")$"ʾ 51,2#+&ʾ $'(ʾ 'ʾ !$+&ʾ #8ʾ ")&ʾ 3&$")ʾ #,ʾ '!$2$! "?6ʾ #,ʾ &81+$-ʾ "#ʾ $!"ʾ #8ʾ $'?ʾ #,ʾ &")&,ʾ #8ʾ ")&ʾ +$ (ʾ ,@ ",$"#,+6ʾ $'#")&,ʾ +)$--ʾ @&ʾ $22# '"&(ʾ 'ʾ) +ʾ "&$(ʾ @?ʾ ")&ʾ 5$,"?ʾ @?ʾ *)#%ʾ #,ʾ 'ʾ *)#+&ʾ &)$-8ʾ)&ʾ *$+ʾ +#ʾ $22# '"&(6ʾ #,ʾ @?ʾ ")&ʾ +$ (ʾ *#ʾ ,@ ",$"#,+ʾ $22# '"&(ʾ @?ʾ ")&ʾ 5$," &+6ʾ $+ʾ ")&ʾ $+&ʾ %$?ʾ @&6ʾ * ") 'ʾ &'ʾ 3$?+ʾ '&9"ʾ $8"&,ʾ #" !&ʾ ")&,&#8ʾ $'(ʾ ")&ʾ +$ (ʾ ,@ ",$"#,+6ʾ #,ʾ $'?ʾ *#ʾ #8ʾ ")&%6ʾ +)$--ʾ $'($,&ʾ)&,&@?ʾ $1")#, L&(ʾ $'(ʾ &%2#*&,&(6ʾ @?ʾ $!"1$-ʾ 1,4&?ʾ #,ʾ <-1"#'6ʾ #,ʾ @?ʾ ")&ʾ 9$% '$"#'ʾ #8ʾ E "'&++&+ʾ 12#'ʾ $")ʾ X*) !)ʾ $")ʾ ")&ʾ +$ (ʾ ,@ ",$"#,+ʾ $,&ʾ)&,&@?ʾ &%2#*&,&(ʾ "#ʾ $(% ' +"&,[6ʾ $'(ʾ @?ʾ +1!)ʾ #")&,ʾ E$?+ʾ $'(ʾ &$'+ʾ $+ʾ ")&?ʾ +)$--ʾ ") ':ʾ 2,#2&,6ʾ "#ʾ !#%21"&6ʾ &+" %$"&6ʾ $'(ʾ (&"&,% '&6ʾ 'ʾ -:&ʾ $''&,ʾ $+ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+ʾ $,&ʾ)&,& 'B@&8#,&ʾ (,&!"&(6ʾ ")&ʾ %#1'"ʾ #8ʾ 51,!)$+&ʾ #'&?ʾ 2$?$@-&ʾ 8#,ʾ ")&ʾ 5&,2&"1 "?ʾ "#ʾ @&ʾ $!C1 ,&(ʾ 1'(&,ʾ ")+ʾ !"6ʾ $'(ʾ "#ʾ %$:&ʾ ")&ʾ *$,(ʾ ")&,& 'ʾ @?ʾ E, " '.ʾ 1'(&,ʾ ")&ʾ $'(+ʾ $'(ʾ &$-+6ʾ #,ʾ 1'(&,ʾ ")&ʾ $'(+ʾ $'(ʾ &$-+ʾ #8ʾ $'?ʾ *#ʾ #8ʾ ")&%ʾ $'(ʾ +1!)ʾ *$,(ʾ +)$--ʾ @&ʾ @ '(ʾ .'ʾ 12#'ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+6ʾ $'(ʾ ")&?ʾ +)$--ʾ $%&'(ʾ $!!#,(.-?ʾ ")&ʾ &," 8 !$"&ʾ #8ʾ ")&ʾ &,%+ʾ #8ʾ ")&ʾ 51,N !)$+&ʾ "#ʾ @&ʾ @?ʾ ")&%ʾ .,$'"&(ʾ "#ʾ +1!)ʾ &'$'"ʾ #,ʾ &++&&6ʾ #,ʾ .,$'"ʾ $'&*ʾ &," 8 !$"&ʾ 'ʾ -&1ʾ ")&,&#8ʾ $'(ʾ ")&ʾ 92&'!&+ʾ #8ʾ +1!)ʾ ,@ ",$" #'ʾ +)$--ʾ @&ʾ @#,'&ʾ @?ʾ ")&ʾ +$ (ʾ #%% ++ #'&,+6ʾ #,ʾ @?ʾ ")&ʾ +$ (ʾ &'$'"ʾ #,ʾ &'$'"+ʾ #,ʾ &++&&ʾ #,ʾ &++&&+6ʾ $+ʾ +1!)ʾ ,@ ",$"#,+ʾ +)$--ʾ (,&!"6

<ʾ '(ʾ @&ʾ " 81,")&,ʾ &'$!"&(ʾ)$"ʾ ")&ʾ +$ (ʾ $''1$-ʾ &'"ʾ +#ʾ ,&+&,4&(ʾ $'(ʾ %$(&ʾ 2$?$@-&ʾ @?ʾ $'?ʾ +1!)ʾ &'$'"ʾ #,ʾ &++&&ʾ #,ʾ H,$'"&&ʾ #1"ʾ #8ʾ #,ʾ 'ʾ ,&+2&!"ʾ #8ʾ $'?ʾ +1!)ʾ $'(+ʾ $'(ʾ 5,&% +&+6ʾ 'ʾ $'?ʾ +1!)ʾ 3&&(ʾ #,ʾ 3&&(+ʾ #8ʾ #'4&?$'!&ʾ ")&,&#8ʾ $+ʾ $8#,&+$ (6ʾ $'(ʾ &4&,?ʾ +1!)ʾ ,&4 +&(ʾ $'(ʾ '&*ʾ $''1$-ʾ &'"ʾ $+ʾ $8#,&+$ (6ʾ +)$--ʾ @&ʾ ,&!#4&,&(ʾ $'(ʾ ,&!#4&,$@-&ʾ @?ʾ $'?ʾ +1!)ʾ ,!)@ +)#2ʾ #,ʾ +)#2ʾ #,ʾ ")&,ʾ !!-&+ $+" !$-ʾ 5&,+#'6ʾ $'(ʾ)ʾ +ʾ 1!!&++#,+6ʾ #,ʾ @?ʾ ")&ʾ +$ (ʾ #%N % ++ #'&,+ʾ $'(ʾ ")&,ʾ 1!!&++#,+6ʾ $+ʾ ")&ʾ $+&ʾ %$?ʾ @&6ʾ @?ʾ $--ʾ #,ʾ $'?ʾ #8ʾ ")&ʾ E$?+6ʾ &$'+6ʾ #,ʾ &%&(ʾ &+ʾ *) !)6ʾ $!!#,(.'ʾ "#ʾ $'?ʾ $*ʾ #,ʾ "$"1"&ʾ '#*ʾ 'ʾ 8#,!&ʾ 'ʾ #,ʾ)&,&$8"&,ʾ "#ʾ @&ʾ %$(&6ʾ +ʾ #,ʾ $,&ʾ #,ʾ +)$--ʾ @&ʾ 2,#4 (&(ʾ 8#,ʾ ")&ʾ &!#4&,?ʾ #8ʾ $'?ʾ &'ʾ #,ʾ &,4 !&ʾ 12#'ʾ $'?ʾ &$+&ʾ 8#,ʾ 8#,ʾ &$,+ʾ &9&!1"&(ʾ @?ʾ $'?ʾ $'(-#,(ʾ #,ʾ 5&,+#'ʾ +&ʾ +&(ʾ 'ʾ &&ʾ %2-&6ʾ $'(ʾ +1@>&!"ʾ "#ʾ $--ʾ ")&ʾ - :&ʾ 1-&+ʾ $'(ʾ &. 1-$N " #'+ʾ @?ʾ "$"1"&ʾ #,ʾ #")&,*ʾ +&6ʾ $'?ʾ $*6ʾ V+$.&6ʾ #,ʾ 1+"#%ʾ "#ʾ ")&ʾ !#'",$,?ʾ '#"*ʾ ")+"$'(ʾ '.ʾ 5,#4 (&(ʾ ")$"ʾ 8ʾ 'ʾ $'?ʾ !"#'ʾ #8ʾ >&!"%&'"ʾ "#ʾ @&ʾ @,#1.)"ʾ #'ʾ $!!#1'"ʾ #8ʾ ")&ʾ #'2$?%&'"ʾ #8ʾ $'?ʾ +1!) $''1$-

=DODG DEʾ. ʾ
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$ ' ' 1$- &'"6 21,+1$'" "# ")& "$"1"&+ '' 8#,!& '' $+ "#
7 #'2$?%&'" #8 &'"6 R1(.%&'" +)$-- @&)$($'(. 4&' 8#, ")&
5-$ '" 88 '' +1!) !"#'6 $'(9&!1"#'' +)$--)$4& @&&' &9&!1"&(6
$'(+1!) "&'$'"6 &++&&6 #' H,$'"&& *)# +)$--)$4& +# 21,N
!)$+&(")& && %2-& $'(')&, "$'!& $+ $8#,&+$ (#8 $'('' +1!)
$'(+ $'(5,&% +&+6)+ ++.'&& #, ++.'&&+6 #, ")& 5&,+#''
#, 5&,+#'+ *)# +)$-- @& ")&'' &'""-&("#)+ +"$"& #, '"&,&+"
")&,& '6 +)$-- '#"6 * ") '' 9 #'")+ 8,#% ")& %& #8 +1!) 9&N
!1"#'' &9&!1"&(6 (# +1!) !" #, !"+ #, "$:& +1!) 5,#!&&('.+ $+
$,& #, +)$-- @& @? $*' '&!&++$,? 8#, ")& &(&%2"#'' #8 ")& +$ (
$'(+ $'(5,&% +&+ 8,#% ")& +$ (R1(.%&'" $'(9&!1"#'6 21,N
+1$'" "# ")& +$ ("$"1"&+6 ")&'' $'('' &4&,? +1!) $+& " +)$--
$'(%$? @& -$*81- 8#, $'? &'$'"6 V'(&,B"&'$'"6 #, *'&, #8 $'?
(&, 4$" 4& &$+&6 +"$"&6 #, '"&,&+" '' ")& +$ ($'(+ $'(5,&% +&+6
*)# +)$--)$?& !#'", @1"&("# ")& 51,!)$+& #8 ")& && %2-& $'(
')&, "$'!& $+ $8#,&+$ (6)+ ++.'&& #, ++.'&&+6 * ") '' '&
#'")+ $8"&, +1!) 9&!1"#'' &9&!1"&(6 "# (# +1!) !" #, !"+ #,
"$:& +1!) 5,#!&&('.+ 8#, ")& &(&%2"#'' #8 ")& +$ ($'(+ $'(
5,&% +&+ 8,#% ")& +$ (R1(.%&'" $'(9&!1"#'6 $'(8#, #@"$ ' '.
&- &8 '' ,&+2&!" #8 ")& +$%&6 $+ 1'(&, ")& +$ (,&! "&("$"1"&+
$'? #,".$.&& #8 $ &$+& % .)" (# #, "$:& 8#, ")& &(&%2"#'' #8
")& +$ (&$+&6 #,)+ +"$"& #, '"&,&+" ")&,& '6 8,#% $'? R1(.%&'"
$'(9&!1"#'' '' $'? !"#'' #8 >&!"%&'" 8#, #'2$?%&'" #8 &'"6
21,+1$'" "# ")& +$ ("$"1"&+6 $'(8#, #@"$ ' '. &- &8 '' ,&+2&!"
#8 ")& +$%&6 $'(* ") ")& - :& 88&!" "# $-- '"&'"+ $'(51,2#+&+
$'($8"&, +1!) &(&%2"#'' ")& 1% #, 1%+ #8 #'&? +# 2$ (#,
$(4$'!&(8#, #, #'' $!!#1'" #8 +1!) &(&%2"#'6 $'(")& #+"+
")&,&#86 +)$-- @& $'(@& (&&%&($ &'' $'( )$,.& 12#'' +1!)
+"$"& #, '"&,&+" #8 +1!) &'$'" #, 5&,+#'' +# 8$-'. #, '&.-&!" '.
"# 2$? ")& +$%&6 #, "# "$:& +1!) 5,#!&&('.+ 8#, +1!) &(&%2"#''
$+ $8#,&+$ (6 $'(+)$-- @& 2$?$@-&6 * ") '"&,&+"6 "# +1!) 5&,+#'' *)#
+)$--)$4& +# 2$ (#, $(4$'!&(+1!) 1% #, 1%+ #, #@"$ '&(+1!)
&(&%2"#'6 #, ")& +$%& +)$-- @& ,&!#4&,$@-& @?) % X$")+ -&!"#'[
8,#% +1!) 5&,+#'' +# $-'. #, '&.-&!" '. $+ $8#,&+$ (6 '' $'(@? $'?
!"#'' #8 3&@"

,C 33 CC7 ^
H23 #' .
' Z#D/! 3"D
/H"O E" C!
H' O26 2C^
C /3 # 3"D
6D2/76 = D#3
3"D# H"2/4DG
2#GE
+2%/3E .'EIH"
2#GE #76

< '(@& " 81,")&, &'$!"&(6)$" " +)$-- $'(%$? @&
-$*81- 8#, $'? *'&,6)+ & ,+6 22# '"&&+6 #, ++.'+6 $" $'?
%& $8"&, ")& 2$++ '. #8 ") + !"6 12#'' $ 3 4 + #'' #8 ")& $'(+
#, 5,&% +&+)&-(@?) % #, ")&%6 & ")&, @? $-& #, #")&,* +&
X&9!&2" @? &$+& #, 3&% +& $" $!: &'"[6 "# %$:& $'' 22- !$"#''
'' E, " '. "# $'? ,!)@ +)#2 #, +)#2 #, #")&, !!-&+ $+" !$- 5&,N
+#'' 1'(&, *)#%)& #, ")&? +)$-- ")&'')#-(")& +$ ($'(+ #,
5,&% +&+6 #, "# ")& #%% ++#'&,+ 1'(&, ") + !" '' !$+& ")& +$ (
$'(+ $'(5,&% +&+ +)$--)$4& @&&'' 4&+"&('' $'(",$'+8&,,&("# ")&
+$ (#%% ++#'&,+6 + .' 8? '. ")& 3&+ ,& #8 +1!) 22- !$'" ")$"
")& ?&$,-? &'" #, &'"+ ")&'' !)$,.&(#, "# @& !)$,.&(#'' ")& +$ (
$'(+ $'(5,&% +&+ @? +1!) 3&&(#8 #'4&?$'!& $+ $8#,&+$ (+)$--
@& (4 (&($'($22#,"#'&(12#'' 5$,"+ #8 ")& +$ ($'(+ $'(5,&N
% +&+ #'-? $'(")&,&12#'' '' &$!) $'(&4&,? +1!) $+& +1!)
,!)@ +)#2 #, +)#2 #, #")&, !!-&+ $+" !$- 5&,+#'6 #, ")& +$ (
K #%% ++#'&,+6 $+ ")& $+& %$? @&6 +)$-- $'( )& #, ")&? + $'(
$,&)&,&@? $1")#, L&($'(,&C1 ,&("# (4 (& #, $22#,"#'' ")&
E)#-&

$ $ B ' ' (2C '

E)#-& #,'$'?' 5$,"#8,")&' +$ ('?&$,-?' &'"#,' &'"+' $+' $8#,&+$ (' '
+1!)' $''&,'$'(' 5,#2#,"#'+'$+' @?'+1!)' 22- !$"#'' %$?'@&',&C1 ,&(
&.$,('@& '.')$('"#' ")&' &!1, "?' #8'")&' +&4&,$-' 5$,"+' #,' 5,#2#,"#'+'
#8'")&' +$ (' ?&$,-?' &'"#,' &'"+' ' $'(' '' !$+&' #8'$'?' 3 +$.,&&%&'"
'' ,&+2&!" #8'+1!)' 22#,"#'%&'"6' ")&'' ")&' +$%&' +)$--' @&' %$(&' @?'
'&' #,' %#,&' <-1"#,+6' "#' @&' '' $--' $+&+' '#% '$"&('@?'")&' +$ (' #%N
% ++ #'&,+' ' $'(' ")&' 92&'!&' #8' +1!)' 22#,"#'%&'"+)$--' @&' '' $--'
$+&+' (&8,$?&(' @?' ")&' 5$,"?' $22-? '.' 8#,' ")&' +$%&'> $'(' +1!)'
,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' #,' ")&' +$ ('
#%% ++ #'&,+6' #,6' '' !$+&' #8' +1!)' 3 +$.,&&%&'"' $+' $8#,&+$ (6' +1!)'
<-1"#,' #,' <-1"#,+6' +)$--' (&!-$,&' *)$"' 5$,"+' $'(' 5,#2#,"#'+' #8'
")&' +$ (' ?&$,-?' &'"#,' &'"+' ,&+2&!" 4&-?'+)$--' '' 81"1,&' @&' +&4&,$--?'
!)$,.&(' 12#'' $'?' 5$,"#,' 5$,"+' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+6' $'('
+)$--' +"$"&' ")&' $%&+' $'(' 3&'#% '$"#'+6' ")&' 1%@&,' #8' !,&+6' $'('
")&' &"&+' $'(' #1'(+' #8' &$!)' 5#,"#'6' $'(' ")&' %#1'"' #8' &'""#'
@&' ,&+&,4&(' $'(' %$(&' 2$?$@-&' #1" #8' &$!)' +1!)' 5#,"#'' ,&+2&!N
"4&-?' ' $'(' $8"&,' &4&,?' +1!)' 22#,"#'%&'" ")&' ?&$,-?' &'"+' #,'
1%+' +#' $22#,"#'&(' +)$--' @&' ,&+&,4&(' $'(' @&' %$(&' $'(' @&' 2$?$@-&'
'' +1!)' 5$,"+' $'(' 5,#2#,"#'+6' $'(' !)$,.&$@-&' #'-?' 12#'' +1!)'
5,#2#,"#'+' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+' $+' +)$--' @&' +#' (&!-$,&('
"#' @&' -$@-&' "#' ")&' 5$?%&'" ")&,&#8' ,&+2&!" 4&-?' $'(' '' !$+&'
")&' +$ (' 22#,"#'%&'" +)$--' @&' %$(&' @&8#,&' ")&' 9&!1"#'' #8'
$' #'4&?$'!&' #8' ")&' &&' %2-&' $'(' ')&, "$'!&6' 21,+1$'" "#'
") +' !"6' ")&'' $'(' '' &4&,?' +1!)' $+&' '' +)$--' $'(' %$?'@&' -$*81-'
8#,' +1!)' ,!)@ +)#2' #,' +)#26' #,' 8#,' ")&' +$ (' #%% ++ #'&,+6' "#'
&9&!1"&' +&2$,$"&' #'4&?$'!&+6' '' ")&' $''&,')&,& 'B@&8#,&' (,&!"&('
8#,'&9&!1" '.' #'4&?$'!&+6' #8' &$!)' +1!)' 5$,"#,' 5,#2#,"#'' #8' ")&'
+$ (' $'(+' $'(' 5,&% +&+6' +1@>&!" #'-?' "#' ")&' 2,#2#,"#'$"&' &'"
2$?$@-&' '' ,&+2&!" ")&,&#8' $'(' '' !$+&' $' #'4&?$'!&' +)$--')$4&'
@&&'' %$(&' #,' &9&!1"&(' @?' +1!)' ,!)@ +)#2' #,' +)#26' #,' ")&' +$ ('
#%% ++ #'&,+6' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+6' ")&'' $'(' '' &4&,?'
+1!)' $+&' ")&' +$ (' ,!)@ +)#2' #,' +)#26' #,' ")&' +$ (' #%% ++ #'&,+6'
+)$--' &9&!1"&6' 1'(&,') +' #,' ")&,' ,&+2&!" 4&' &$-6' $' &," 8 !$"&' +&"" '.'
8#,")' ")&' +$ (' 22#,"#'%&'"6' $'(' ")&' %#1'"' #8' ")&' &'""#' @&'
!)$,.&(' #,' !)$,.&$@-&' 12#'' &$!)' 5#,"#'' #8' ")&' +$ (' $'(+' $'('
5,&% +&+6' $'(' +)$--' !$1+&' ")&' +$%&' "#' @&' ,&. +"&,&(' '' ")&' &. +",?'
#8' ")&' 3 #!&+&' *)&,&' '' ")&' +$ (' $'(+' $'(' 5,&% +&+' +)$--' @&' +"1$"&6'
$'(' $-+#' "#' @&' &',#--&(' '' ")&' #--+' 88 !&' #8' ")&' .)' #1,"' #8'
)$'!&,?' $-#'.' * ")' $'(' $''&9&(' "#' ")&' ',#-%&'"' #8' ")&' 3&&(' #8'
#'4&?$'!&' #8' +1!)' $'(+' $'(' 5,&% +&+' $+' $8#,&+$ (' $'(' $8"&,'
+1!)' &. +",?' $'(' ',#-%&'"' #8' +1!)' &," 8 !$"&' ")&' +$ (' $'(+'
$'(' 5,&% +&+' +)$--' ")&'!&8#,*$,(' +"$'(' $'(' @&' !)$,.&(' $'(' !)$,.&N
$@-&' * ")' ")&' +$ (' ?&$,-?' &'"#,' 1%+' '' +1!)' 5$,"+' $'(' 5,#2#,"#'+'
#'-?' $'(' '' +1!)' $''&,' $+' +)$--' @&' +2&! 8 &(' '' +1!)' &," 8 !$"&'
$'(' $' #2?' #8' +1!)' ',#-%&'"6' (1-?' !#%2$,&(' $'(' $""&+"&(6' +)$--'
@&' !#'!-1+ 4&' 4 (&'!&' #8' ")&' %#1'"' #8' &'"' * ")' *) !)' &$!)'
,&+2&!" 4&' 5#,"#'' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+' +"$'(+' !)$,.&('
$'(' !)$,.&$@-&

< ' '(' @&' "81,")&,' &'$!"&(' ')$" %%&(' $"&-?' 12#'' ")&' 2#GE' !#%B
9&!1"#'' #8' +1!)' 3&&(' #8' #'4&?$'!&' $+' $8#,&+$ (' #8' ")&' +$ (' 2, !&(' #'#DZ'
$'(+' $'(' 5,&% +&+6' 1'(&,' ")&' 5,#4 + #'+' #8'") +' !"6' ")&' +$ (' $'(+' "#' @& &""-&('
$'(' 5,&% +&+' '' ")&' +$ (' 3&&(' #8' #'4&?$'!&' %&'"#'&(6' $'(' ")&' "#. /OD/'
;' ' +"$"&+' V+&+

;' ' ' B ' ;' (2C'

+"$"&+' #,' '"&,&+"+' ")&,&@?' +#' .,$'"&(6' +)$--' ")&,&12#'' ,&+2&!" 4&-?'
.#' "#' $'(' @&' 4&+"&(' '6' +&""-&(' 12#'6' $'(' &'>#?&(' @?' ")&' +$%&' 5&,+#''
#,' 5&,+#'+6' 8#,' ")&' - :&' +"$"&6' +"$"&+6' #,' '"&,&+"+6' $'(' "#' $'(' 12#''
")&' +$")8&7V+&+6' ,1+"+6' '"&''"+6' $'(' 51,2#+&+' ,&+2&!" 4&-?6' X#,' $+' '&$,'
")&,&"#' $+' ")&' $"1,&' #8' &$!)' $+&' $'(' ")&' 3 88&,&'!&' #8' '"&,&+"'
M*-' $(% "6[' $+' ")&' +$(' $'(+' $'(' 5,&% +&+' +"##(' +&""-&(' #,' - % "&('
"#6' 8#,6' #,' V2#'6' #,' +1!)' #8' ")&%' $+' $"' ")&' %&' #8' %$: '.' +1!)'
#'4&?$'!&' +)$--' @&' &9 +" '.' 1'(&"&,% '&(' $'(' !$2$@-&' #8' "$: '.'
&88&!"]' 5,#4 (&(' $-*$?+6' ")$"' ")&' 9&!1" #'' @8' +1!)' 3&&(' #8' #'B'
K4&?$'&&' $+' $8#,&+$ (' +)$--' #2&,$"&' $+' $'(' @&' $'(' @&' (&&%&(' "#' @&7'
"#' $--' '"&''"+' $'(' 51,2#+&+6' $' 1,,&'(&,' #8' $--' $'(' &4&,?' ")&' ")&''
2,&4 #1+-?' +1@+ +" '.' &,%' #,' &,%+' #8' &$,+6' +"$"&6' #,' '"&,&+"'
'' ")&' +$(' $'(+' $'(' 5,&% +&+' (&, 4&(' 8,#%' #,' 1'(&,' +1!)' ,!)N
@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' #,' ")&' +$(' #%N
% ++ #'&,+6' $+' ")&' $+&' %$?' @&' $'(' ")&' +$%&' $'(' &4&,?' #8' ")&%'
+)$--' ")&'!&8#,")' !&$+&6' (&"&,% '&6' $'(' @&' 8#,' &4&,' &9" '.1 +)&(

D#2#3' 2H^
\ l / #4' +D/^
CD3 l 36' E"27'
/D#DZ' 3 ' 5 '
.D/ / D#2#3E'
Z"D#' O l#G'
O6' 3 3 DE'
\ l 3 DE'
(FD#2#3

' '(' @&' '' 81,")&,' &'$!"&(')$"' *)&'&4&,' $'?' +1!)'
&'$''' #,' &++&&' *)#' +)$--')$4&' 21,!)$+&(' $'(' $!C1 ,&(' $+' $8#,&+$ ('
")&' &&' %2-&' $'(' ')&, "$'!&' #8' $'(' '' +1!)' $'(+' $'(' 5,&% +&+'
2,&4 #1+-?')&-(' @?') %' $+' %%&($"&' $'(' +12&, #,' &'$''' 1'(&,'
+1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' #,' ")&' +$ ('
#%% ++ #'&,+' $22#' '"&(' 1'(&,' ") +' !"6' +)$--6' @?' 4 ,"1&' #8' $'?' &$+&A'
#4&'$'"6' #,' #'",$!"' ")&,&"#8#,&' %$(&' #,' &'"&,&(' %"#6' @&' @#1'(' "#'
,&'&*' "#' $'?' #")&,' 5&,+#'' #,' 5&,+#'+' $'?' &$+&' #8' $'?' +1!)' $'(+'
$'(' 5,&% +&+6' &")&,' $+' #8"&'' $+' +1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,'
!!-&+ $+" !$-' 5&,+#'' ,&+2&!" 4&-?' +)$--' ,&'&*' ")&' &$+&' #8' +1!)' $'(+'
7'(' 5,&% +&+' "#') %' +1!)' %%&($"&' +12&, #,' &'$'"6' #,' '' $'?' #")&,'
$''&,6' ")&'' $'(' '' &4&,?' +1!)' $+&' ")&' #'4&?$'!&' #8' ")&' &&'
%2-&' $+' $8#,&+$ (' #8' $'(' '' ")&' +$ (' $'(+' $'(' 5,&% +&+' $+' $8#,&N
+$ (' "#' +1!)' %%&($"&' $'(' +12&, #,' &'$''' X#,' ")&' 5$?%&'' 8,#%'
%&' "#' %&' #8' ")&' $''1$-' &''' #1'' #8' ")&' +$ (' $'(+' $'(' 5,&N
% +&+' "#' ")&' +$ (' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,BA'
+#'6' #,' "#' ")&' $(' #%% ++ #'&,+' ,&+2&!" 4&-?6[' +)$--' X+#' -#'.' $+' ")&'
+$ (' +"$"&' #,' '"&,&+"' ")&,&@?' .,$'"&(' +)$--' !#'" '1&[' '' $--' #1,"+'
#8' $*' $'(' C1 "?6' $'(' "#' $--' '"&''"+' $'(' 51,2#+&+' *)$"+#&4&,6' $+' "#'
+1!)' 1'(&,' &'$''' #,' '8&, #,' &'$'"6' #,' 5&,+#'' #,' 5&,+#'+')$4 '.'
$'?' +1!)' (&, 4$"' 4&' +"$"&' #,' '"&,&+"6' $'(' @& '.' &'" "-&(' "#' ")&'
&'&8'' #8' 1!)' #4&'$''' #,' #'",$!'' 8#,' &'&E$-6' $'(' $+' "#' $--'
")&,' (&, 4$"' 4&' +"$"&+' #,' '"&,&+"+' '' ")&' +$ (' $'(+' $'(' 5,&% +&+'
(&2&'(&'' 12#'' +1!)' #4&'$'"6' #'",$!"6' #,' .,&&%&'' 8#,' &N
'&*$-A' @&' $'(' @&' (&&%&(6' "$:&'6' $'(' !#'+",1&(' "#' @&' $' &'&*$-' @?'
+#&)' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' #,' #")&,+'
* +&6' 8,#%' %&' "#' %&' #8' ")&' &$+&' #8' +1!)' %%&($"&' $'('
+12&, #,' &'$'"6' 8#,' ")&' 51,2#+&+' #8' $'(' * ") '' ")&' ",1&' '"&''' $'('
&$' '.' #8' +1!)' #4&'$'"6' #'",$!"6' #,' .,&&%&'' 8#,' &'&*$-' $+'
$ @8&+$ (

(#3/ O13 #'
.' #.D/ /'
"$ '&8@7

' '(' @&' '' 81,")&,' &'$!"&(6')$"' *)&'' ")&' '&' "#' @&'
2$ (' 12#' ' ")&' 9&!1" #'' #8' $'?' +1!)' &'&*$-' $+' @&8#,&' %&'" #'&('
@&&'6' @?' +1!)' #4&'$'"6' #'",$!"6' #,' .,&&%&'' 8#A
&'&*$-6' $.,&&!-' "#' @&' $' !&,"$ '' #,' $+!&,"$ '&(' 5,#2#," #'' #8' #,'
(&2&'(&'' V2#'' ")&' %#1''' #8' ")&' &'&4<$-' '&' "#' @&' 2$ (' @?' ")&
%%&($"&

K' ' $ B ' ' (2C '

%%&($"&' +12&, #,' &'$'"' #8' +1!)' $'(+' "#' +1!)' ,!)@ +)#2' #,'
+)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'' $+' $8#,&+$ (6' ")&'' $'(' '' +1!)'
$+&6' 12#'' $'(' $8"&,' ")&' #%2-&" #'' #8' +1!)' 51,!)$+&' #8' ")&' &&'
%2-&' #8' $'(' '' ")&' +$ (' $'(+' $'(' 5,&% +&+' $+' $8#,&+$ (6' ")&'
%#1''' #8' +1!)' 5,#2#," #'' #8' +1!)' &'&*$-' '&' 2$?$@8&' @?' +1!)'
1'(&,' #,' '8&, #,' &'$''' +)$--' @&' $+!&,"$ '&(' @?' ,&8&,&'!&' "#' ")&'
%#1''' #8' ")&' $4&,$.&' &'&*$-' '&' 2$?$@-&' 2,&4 #1+-?' "#' ")&' +$ ('
51,!)$+&6' $+' $22&$, '.' '' ")&' &," 8 !$"&' #8' ")&' +$ (' #%% ++ #'&,+'
$22# '"&(' 1'(&,' ") +' !"6' ,&. +"&,&(' '' ")&' &. +",?' #8' ")&' 3 #!&+&6'
$'(' &',#--&(' '' ")&' #--+' 88 !&' #8' ")&' #1,' #8')$'!&,?' $+' $8#,&N
+$ (6' $+!&,"$ ' '.' ")&' %#1''' #8' ")&' $4&,$.&' &'&*$-' '&' 2$?$@-&'
@?' ")&' %%&($"&' +12&, #,' &'$''' #8' ")&' +$ (' $'(+' 2,&4 #1+-?' "#'
+1!)' 51,!)$+&' $'(' $-&' #8' ")&' &&' %2-&' $'(' ')&, "$'!&' ")&,& ''
$+' $8#,&+$ (6' $'(' '' '#' #")&,' $''&,' *)$"+#&4&,

' 5,#4 (&(' $-*$?+6' $'(' @&' '' 81,")&,' &'$!"&(')$"' +1!)' A #D'. /' = D '
'&' "#' @&' 2$ (' 12#'' ")&' 9&!1" #'' #8' $'?' +1!)' &'&*$-' $+' $8#,&B' #DZ 273 OD'
+$ (' +)$--' @&' +1@>&!' "#' +1!)' <$, $" #'' $+' %$?' @&' %$(&' '' ")&' $!!#'7'&
%#1''' ")&,&#8' $!!#,('.' "#' ")&' 5, !&' #8' E)&$"' #,' $"+' '' $'?' 4&$.&X 3
5&, #(' #8' &4&'' &$,+6' $!!#,('.' "#' ")&' 5,#4 + #'+')&,& 'B@&8#,&' +/ HD' .'
!#'"$ '&(6' +1!)' <$, $" #'' "#' @&' $22- &(' 8#,' $'(' $+!&,"$ '&(' '' ")&' @"D23' /'
- :&' $''&,6' $'(' +1@>&!' "#- :&' &.1-$" #'+6' +#' 8$,' $+' ")&' +$%&' $,&'
$22- !$@-&6' $+')&,& 'B@&8#,&' 2,#4 (&(' '' ,&+2&!' #8' ")&' <$, $" #'' #8'
")&' '&*' &'"+' "#' @&' ,&+&,4&(' 1'(&,' ") +' !"

' '(' *)&,&$+' +1!)' 51,!)$+&' #8' ")&' &&' %2-&' $'(' ')&, "N +D/E #E'
$'!&' #8' $'(' '' +1!)' $'(+' @?' +1!)' %%&($"&' +12&, #,' &'$''' #8' "2F #4'
+1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' #,' ")&' +$ (' GD/ F23 FD'
#%% ++ #'&,+6' * --6' 21,+1$''' "#' ")&' 5,#4 + #'+')&,&#86' &'1,&' "#' ")&' E323DE' E"27'
&'&8 '' #8' $--' 5&,+#'+')$4 '.' (&, 4$" 4&' +"$"&+' #,' '"&,&+"+' '' ")&' H #3/ O13D'
+$ (' $'(+' @?' 4 ,"1&' #8' &$+&+' !#'"$ ' '.' #4&'$''+' #,' #'",$!"+' 3 Z2/GE' +I/^
8#,' &'&*$-6' $'(' '' +' >1+'' ")$" $--' 5&,+#'+')$4 '.' +1!)' (&, 4$" 4&' H"2ED' B #D6
'"&,&+"+' $'(' !-$ % '.' ")&' &'&8 '' #8' ")&' 5,#4 + #'+' #8' ") +' !"
+)#1-(' !#'", @1"&' "#' ")&' 92&'!&' #8' +1!)' 51,!)$+&' ' @&' '' ")&,&8#,&'
&'$!"&(')$"' *)&'&4&,' $'?' +1!)' &'$''' #8' +1!)' $'(+6')#-('.' ")&'
+$%&' %%&($"&-?' 8,#%' $'(' 1'(&,' +1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,'
!!-&+ $+" !$-' 5&,+#'6' #,' ")&' +$ (' #%% ++ #'&,+6' +)$--')$4&' 21,!)$+&('
")&' &&' %2-&' $'(' ')&, "$'!&' $+' $8#,&+$ (' #8' $'(' '' ")&' +$ (' $'(+'
$'(' 5,&% +&+' $"' $'!&,"$ '' $"&' #8' 51,!)$+&' #'&?' $+' $8#,&+$ (6' 21,N
+1$''' "#' ")&' 5,#4 + #'+' #8' ") +' !"6' $'(' +)$--6' $8"&,' !#%2-&" '.' +1!)'
51,!)$+&6' @&' @#1'(6' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"6' #,' #")&,* +&6'
"#' ,&'&*' $'?' &$+&' #,' &$+&+' #8' $'?' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+'
"#' $'?' 1'(&,' #,' '8&, #,' &'$'"6' #,' $'?' #")&,' 5&,+#'' #,' 5&,+#'+6' $--'
$'(' &4&,?' +1!)' 5&,+#'' $'(' 5&,+#'+')$4 '.' $'?' (&, 4$" 4&' +"$"&' #,'
'"&,&+"' '' ")&' +$ (' $'(+' $'(' 5,&% +&+' %%&($"&-?' #,' %&($"&-?'
8,#%6' "),#1.)6' #,' 1'(&,' +1!)' %%&($"&' +12&, #,' &'$''' *)#' +)$--'
)$4&' %$(&' +1!)' 51,!)$+&' $+' $8#,&+$ (6' +)$--' ,&+2&!" 4&-?' !#'", @1"&'
"#*$,(+' ")&' %#1''' #8' ")&' 51,!)$+&' #'&?' ")&,&#86' #,' "#*$,(+'
,& %@1,+ '.' $'(' 2$?' '.' #8' $' 5,#2#," #'' #8' ")&' +$%&6' &$!)' "#') +' #*''
'&9"' %%&($"&' $'(-#,(6' $!!#,('.' "#' ")&' <$-1&' #8' ")&' ,&+2&!" 4&'
'"&,&+"6' '' %$''&,' 8#--#*' '.' ' ")$"' +' "#' +$?6' '' +)$--' $'(' %$?' @&'
-$*81-' 8#,' +1!)' %%&($"&' +12&, #,' &'$''' *)#' +)$--')$4&' %$(&' +1!)'
51,!)$+&' $+' $8#,&+$ (6') +' 9&!1"#,+' $'(' (% ' +",$"#,+6' @?' #" !&

'' E , " ' .6 "# !$--' 12#'' $' (' ,&C1 ,& $--' $' (' &4&,?' +1!)') +' 1' (&,' #,'
'8&, #,' &'$'" #,' &'$'"+6 #,' 5&,+#'+')#-(' .' %%&($"&-?' 8,#%' #,'
1' (&,') %6 $+' +)$--' @& &'" "-&(' "# $'?' +"$"&' #,' '"&,&+" '' $'?' #8
+1!)' $> (+' $' (' 5,&% +&+' @?' 4 ,"1& #8 $'?' &$+&' #,' #'",$!" !#'N
"$ ' ' .' $'?' #4&'$'" #,' .,&&%&'" 8#,' &'&*$-' #8 +1!)' +"$"&' #,'
'"&,&+"6 "# !#'", @1"&' ,&+2&!" 4&-?' "#*$,(+' +1!)' 51,!)$+& #'&?' ''
2,#2#," #'' "# ")&' <$-1& #8) +' #,' ")& ,' ,&+2&!" 4& +"$"&' #,' '"&,&+"
'' ")&' +$ (' $' (+' $' (' 5,&% +&+6 #,' $'?' #8 ")&%' ' $' (' '' - :&' $''&,'
" +)$--' $' (' %$?' @& -$*81-' 8#,' $'?' +1!)' 1' (&,' #,' '8&, #,' &'$'" #,'
5&,+#'')#-(' .' ")&' +$ (' $' (+' $' (' 5,&% +&+6 #,' $'?' #8 ")&%6 12#''
@& ' .' +&,4&(' * ")' +1!)' #" !& ,&C1 , ' .' 8,#%') %' +1!)' #'", @1" #''
$+' $8#,&+$ (6 @?' #" !& '' E , " ' .' "# !$--' 12#'' $' (' ,&C1 ,& $--' $' ('
&4&,?' 1' (&,' #,' '8&, #,' &'$'"6 #,' 5&,+#'' #,' 5&,+#'+')#-(' .' %%&N
($"&-?' 8,#%' #,' 1' (&,') %' ,&+2&!" 4&-?' $'?' #8 +1!)' $' (+' $' (' 5,&N
% +&+6 @?' 4 ,"1& #8 $'?' &$+&' #,' #'",$!" !#'"$ ' ' .' $'?' #4&'$'"
#,' .,&&%&'"8#,' &'&*$-6 "# !#'", @1"&6 '' 2,#2#," #'' "# ")&' <$-1& #8
) +' #,'")& ,' ,&+2&!" 4& '"&,&+"6 "#*$,(+' +1!)' 1%' #8 #'&?' "# @& 2$ ('
$+' +1!)' #'", @1" #'' $+' $8#,&+$ (' @?' +1!)') +' #,' ")& ,' '&9" %%&N
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#8 #,' 5&,+#'')#-(' .' $'?' #8 +1!)' $' (+' $' (' 5,&% +&+6 12#'' @& ' .' +#
!$--&(' 12#'' 8#,' $'?' +1!)' #'", @1" #'' $+' $8#,&+$ (6 %$?' $' (' +'
)&,&@?' &%2#*&,&(6 @?' &,4 !& #8 $ #" !& '' E , " ' .6 "# ,&C1 ,& $
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",$!" !#'"$ ' ' .' $'?' #4&'$'" #,' .,&&%&'" 8#,' &'&*$-

' ' (' @& " 81,")&,' &'$!"&(')$" " +)$--' $' (' %$?' @& -$*81-'
8#,' $'?' +1!)' %%&($"&' +12&, #,' &'$'" #8 ")&' +$ (' $' (+' 1' (&,'
+1!)' ,!)@ +)#2' #,' +)#2' #,' #")&,' !!-&+ $+" !$-' 5&,+#'+6 #,' ")&
+$ (' #%% ++ #'&,+6 $+' ")&' $+& %$?' @&6 #,' 8#,' $'?' 1' (&,' #,' '8&, #,'
&'$'" #,' #")&,' 5&,+#'' $+' $8#,&+$ (')$4 ' .' #,' !-$ % ' .' $'?' (&, 4N
$" 4& +"$"&' #,' '"&,&+" '' $'?' #8 ")&' +$ (' $' (+' $' (' 5,&% +&+' %%&N
($"&-?' #,' %&($"&-?' 8,#%6 "),#1.)6 #,' 1' (&,' +1!)' +12&, #,' &'$'"6
1' (&,' #,' @?' 4 ,"1& #8 $'?' &$+&' #,' #'",$!" !#'"$ ' ' .' $ #4&'$'"
#,' .,&&%&'" 8#,' &'&*$-6 '' !$+&' $'?' 3 +21"&' #,' 3 88&,&'!&' +)$--'
$, +&' @&"*&&'' ")&%' #,' $'?' #8 ")&%' ,&+2&!" 4&-?' $+' "# ")&' 1%' #8
#'&?' "# @& 2$ (' @?' $'?' +1!)' '8&, #,' &'$'" "# $'?' +1!)') +' '&9"
%%&($"&' $' (-#,(' #,' ")&' 5&,+#'' 8,#%' *)#%')&')#-(+' ")&' +$ ('
$' (+6 #,' $'?' #8 ")&%6 $+' $' (' 8#,' $ #'", @1" #'' "#*$,(+' +1!)' 51,N
!)$+& #'&?' $+' $8#,&+$ (6 #,' "#*$,(+' ,& %@1,+ ' .' "# +1!)') +' '&9"
%%&($"&' $' (-#,(' #,' 5&,+#'' 8,#%' *)#%')&')#-(+' $+' $8#,&+$ (' $
5,#2#," #'' #8 ")&' 1%+' #8 #'&?' 2$ (' #,' 2$?$@-&' @?' +1!)') +' '&9"
%%&($"&' $' (-#,(' $+' $' (' 8#,' $ #'", @1" #'' '' ,&+2&!" #8 +1!)'
51,!)$+&' $+' $8#,&+$ (6 #,' '' !$+&' (1, ' .' ")&' 5&, #(' #8 9 $-&'($,'
#'")+' 8,#%' ")&' &,4 !& #8 $'?' +1!)' #" !& $+' -$+" $8#,&+$ (' ")&,&
+)$--' @& $'' % ++ #'' #,' &.-&!" @?' $'?' #8 +1!)' 5$," &+' #,' 5&,+#'+' "#
$.,&&' * ")' ,&+2&!" "# $'?' +1!)' #'", @1" #6 #,' '' !$+&' * ") '' +1!)'
%&' '# .,&&%&'" +)$--' @& %$(&' *(")' ,&+2&!" "# ")&' +$%&6 #,' ''
!$+&' $'?' +1!)' 3 +21"&' +)$--' $, +&' ,&+2&!" ' .' $'?' #,".$.&' #,' $-&' #8
$'?' $' (' #,' 5,&% +&+' 8#,' ,$ + ' .' $'?' #'", @1" #'' #'&?' #,' 5$,"
")&,&#8' #,' ,&+2&!" ' .' ")&' <$, $" #'' #8 $'?' '&6 $+')&,& 'B$8"&,'
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&+&,4$" #'' #8 $'?' $(("#'$-' $' (' '!,&$+&(' $''1$-' &'" "# @&
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,&+&,4&(' '' - &1' #,' +"&$(' #8' $'?' #'", @1" #'' 1'(&,'")&' 5,#4 + #'+'
)&,& 'B$8"&,' !#'"$ '&(6' '' $'? #8' +1!)' $+&+' "#' 2,&+&'"' $' 5&" " #'' "#'
")&' .)' #1," #8' -1 '!&,?' #,' #1," #8' 9!)&C1&,' '' '
+"$" '.' ")&' 5,&% +&+' ,&+2&!" 4&-?' $+' ")&' $+&' %$?' @&6' $'(' 2,$? '.'
")&' 2,#2&,' #,' '&!&++$,?' &- &8' '' ,&-$" #'' "#' ")&' +$ (' $""&,+' ' *)&,&N
12#'' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' +1!)' #1,"6' * ")#1" ,&C1 , '.'
5,##8' #8' $'?' #" !&' #8' +1!)' 5&" " #'' @& '.' . 4&'' "#' #,' +&,4&(' 12#''
$'?' 5&,+#'' #,' 5&,+#'+6' "#' %$:&' $"' ,(&,' ,&8&,, '.' ")&' $""&,' #8'
+1!)' 5&" " #'' "#' #'&' #8' ")&' $+"&,+' #8' ")&' #1," #8')$'!&,?6' #,' "#'
")&') &8' &%&%@,$'!&,' #8' ")&' #1," #8' 9!)&C1&,6' $+' ")&' $+&'
%$?' @&6' (,&!" '.' +1!)' $+"&,' #,') &8' &%&%@,$'!&,' "#' 'C1 ,&'
$'(' ,&2#," !#'!&,' '.' ")&' +$ (' $""&,+' #,' $'?' #8' ")&%6' $+' +1!)'
#1," +)$--' (,&!"' $'(")&,&12#'' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&'
+$ (' $+"&,' #,') &8' &%&%@,$'!&,6' $+' ")&' $+&' %$?' @&6' "#' +1%%#''
@&8#,&') %' $'?' #8' ")&' +$ (' 5$," &+6' #,' $'?' 5&,+#'' #,' 5&,+#'+6' $'(' "#'
&9$% '&') %' #,' ")&%6' 12#'' $")6' ,&+2&!" '.' $'?' #8' ")&' $""&,+' +#'
,&8&,,&(' "#') %6' $'(' 12#'' 22&$,$'!&' #86' #,' 5,##8' #8' &,4 !&' #8'
#" !&' #8' +1!)' 5&" " #'' $'(' ,(&,' 12#'6' $'?' +1!)' 5&,+#'' #,' 5&,+#'+'
"#' @&' $8&&!"&(' @?' +1!)' 5&" " #'6' "#' 'C1 ,&' $'(' %$:&') +' &2#,"
!#'!&,' '.' ")&' +$ (' R<-$""&,+' +#' ,&8&,,&(' "#') %6' $+' '' #")&,' $+&+' #8'
&8&,&'!&+' "#' $'?' +1!)' $+"&,' #,' - &8' &%&%@,$'!&,' 1'(&,' ")&'
,(&,+' #8' +1!)' ,&+2&!" 4&' #1,"+' ' "#' *) !)' &2#," #8' +1!)' $+"&,'
#,') &8' &%&%@,$'!&,' '' +)$--' @&' -$*81-' 8#,' $'?' #8' ")&' +$ (' 5$,N
" &+' "#' ")&' +$ (' 5&" " #'' #,' "#' @&' $8&&!"&(' @?' '' "#' "$:&' $'' 9!&2" #''
#,' 9!&2" #'+' $+' '' #")&,' $+&+' #8' 9!&2" #'+' "$:&'' "#' $'?' &2#,"+'
#8' +1!)' $+"&,' #,') &8' &%&%@,$'!&,' $'(' 12#'' ")&' &$, '.' #8'
+1!)' &2#," *)&'' '#' &9!&2"&(' "#6' #,' 12#'' ")&' &$, '.' #8' +1!)'
9!&2" #'+' "#' +1!)' &2#," *)&'' $'?' +1!)' +)$--')$4&' @&&'' "$:&''
")&,&"#6' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' +1!)' #1," "#' %$:&' +1!)' ,(&,'
8#,' ")&' 5$?%&'' #8' +1!)' 1%' #,' 1%+' #8' #'&?' @?' +1!)' 5&,+#'' #,'
5&,+#'+' $+' +)$--' @&' 8#1'(' "#' @&' !)$,.&$@-&' * ")' ")&' +$%&' @?' +1!)'
&2#,"6' #,' #8' +1!)' 1%' #,' 1%+' #8' #'&?' @?' +1!)' 5&,+#'' #,' 5&,+#'+'
$+6' 12#'' 9!&2" #'+' "$:&'' "#' +1!)' &2#,"6' ")&' +$ (' #1," +)$--' (&&%'
"#' @&' 2,#2&,-?' !)$,.&$@-&' * ")' ")&' +$%&6' "#' @&' 2$ (' * ") ''),&&'
$-&'($,' #'")+' 8,#%' ")&' %&' #8' &,4 !&' #8' +1!)' ,(&,' #8' ")&' +$ ('
#1,"6' '' +1!)' $''&,' $+' +1!)' #1," +)$--' ") ':' 8 "6' #,' +1!)' #")&,'
,(&,' $+' ")&' +$ (' #1," +)$--' ") ':' 8 "' $'(' +1!)' ,(&,' #8' +1!)' #1,"
+)$--' @&' 8 '$-' $'(' !#'!-1+ 4&6' $'(' * ")#1" $'?' 22&$-' ")&,&8,#%'
$'(' ")&' +$ (' #1," %$?' #,(&,' ")&' #+"+' #8' $'?' +1!)' 5,#!&&('.+'
'' ,&-$" #'' "#' ")&' +$ (' 5&" " #'' "#' @&' 2$ (' @?' #,' "#' $'?' #8' ")&' +$ ('
5$," &+' ,&+2&!" 4&-?6' $+' ")&' +$ (' #1," +)$--' ") ':' 8 "6' *) !)' +$ ('
,(&,' #,' ,(&,+' +)$--' $'(' %$?' @&' +&,4&('&")&,' '' ")&' $''&,')&,& 'N
$8"&,' 2,#4 (&(6' #,' '' +1!)' #")&,' $''&,' $+' ")&' +$ (' #1," +)$--' ") ':'
8 '' "#' (,&!"] 5,#4 (&(' $-*$?+6' ")$" '' +)$--' $'(' %$?' @&' -$*81-' 8#,' $'?'
+1!)' %%&($"&' +12&, #,' &'$'' #8' +1!)' $'(+' $'(' 5,&% +&+6' 8')&'
+)$--' +#' ") ':' 8 "6' "#' %$:&' $--' ")&' &'$'"+' #,' 5&,+#'+')$4 '.' #,' !-$,$4'
'.' $'?' (&, 4$" 4&' +"$"&' #,' '"&,&+' '' ")&' +$ (' $'(+6' *)&")&,'
%%&($"&-?' #,' %&($"&-?' 8,#%6' "),#1.)6' #,' 1'(&,') %' @?' 4 ,"1&' #8'
$'?' #4&'$'' 8#,' &'&*$-6' 5$," &+' "#' $'?' +1!)' 5&" " #'6' 8#,' ")&'
51,2#+&' #8')$4 '.' $--' ")&' 1%+' #8' #'&?' 2$?$@-&' @?' #,' !)$,.&$@-&'
12#'' $--' $'(' &4&,?' #8' +1!)' 5&,+#'+' '' ,&+2&!" #8' $'?' +1!)' #'", @1N
" #'' + %1-"$'&#1+-?' $+!&,"$ '&(

+D/E #E "2F^ #4 GD/ F23 FD E323DE! 2#G .2 7 #4 3 C26 (#3/ O I3 #! E"27 . /.D 3 = 4"3 .=D^ #DZ27

< '(@& " 81,")&, &'$!"&(6)$" 8 $'? +1!) 5&,+#' #, 5&,+#'+)$4 '. #, !-$ % '. $'? +1!) (&, 4$" 4& +"$"& #, '"&,&+" " +1!) $'(+ $'(5,&% +&+ @? 4 ,"1& #8 $'? &$+& #, #'",$!" !#'N "$ ' '. $'? +1!) #4&'$'" #, .,&&%&'" 8#, &'&*$-6)$4 '. @&&'" +&,4&(P7 "@ $'? +1!) #" !& !$-- '. #") % #, ")&% 8#, $'? +1!) #'", @1" #'" $+ $8#,&+$ (6 +)$-- @? E , " ' . (&!- '& #, ,&81+& "# "$:& #, $!!&2" $ &'&*$- #8 +1!) +"$"& #, '"&,&+"6 +1@>&!" "# ")& 5,#4 N +#'+ #8 ") + !"6 #, *)# @& '. +# +&,4&(* ") $'? +1!) ,(&, #8 +1!) #1," $+ $8#,&+$ (+)$-- '&.-&!" #, ,&81+& "# !#%2-? * ") ")& &,%+ #8 +1!) ,(&, 8#, #, (1, '. ")& 5&, #(#8),&& $-&'($, #'")+ 8,#% ")& %& #8 ")& &,4 !& #8 +1!) ,(&, $+ $8#,&+$ (6 &4&,? +1!) 5&,+#' +# (&!- ' '. #, ,&81+ '. "# "$:& #, $!!&2" +1!) &'&*$- $+ $8#,&+$ (6 #, '&.-&!" '. #, ,&81+ '. "# !#%2-? * ") +1!) ,(&, $+ $8#,&+$ (6) + #, ")& , & ,+6 9&!1"#,+6 (% ' +",$"#,+6 $'(++ . '+6 $'($-- #")&, 5&,+#'+ !-$ % '. 1'(&,) %6 #, !-$ % '. $'? &'&8 " #, '"&,&+" 1'(&, $'? +1!) ,&+2&!" 4& &$+& #, #'",$!" !#'N "$ ' '. +1!) #4&'$'" #, .,&&%&'" 8#, &'&*$-6 +)$-- 8#, &4&, ")&,&$8"&, @& @$,,&(#8 $'(8,#% $-- .)"6 &'&8 "6 $'((4$'"$.&6 " $* #, C1 "?6 '6 #86 $'(8,#% +1!) #4&'$'" #, .,&&%&'" 8#, &'&*$-6 #, "# #@"$ " $'? '&* &$+& #8 ")& +$ ($'(+ $'(5,&% +&+ ,&+2&!" 4&-? $'(&4&,? +1!) 5&,+#' #, 5&,+#'+6) + #, ")& , & ,+6 9&!1"#,+6 (% ' +",$"#,+6 $'(++ . '+6 $'($- 5&,+#'+ !-$ % '. $'? &'&8 " #8 +1!) ,&+2&!" 4& #4&'$'" #, .,&&%&'" 8#, &'&*$-6 +)$-- @& ")&'!&8#,")" 8#, &4&, @$,,&(8,#% $-- &-&8 " $'? #1," #8 $* #, C1 "? " ,&+2&!" #8 $'? +1!) #4&'$'" #, .,&&%&'" 8#, &'&*$-] 5,#4 (&($-*$?+6 ")$" $'? +1!) ,(&, #8 $'? +1!) #1," $+ $8#,&+$ (+)$-- $'(%$? @& &'8#,!&(@? $'? #8 ")& E$?+ #, &$'+ @? *) !) $'? ,(&, 2,#'#1'!&(@? +1!) #1," " $'? 1 " " C1 "? 12#' $ -- 8 -&(%$? @& &'8#,!&(6 +$4& #'-? $+ $.$ '+" $'? 5&,+#' #, 5&,+#'+ *)#6 @& '. &'"-&("# $'? +1!) (&, 4$" 4& +"$"& #, '"&,&+" $+ $8#,&+$ (6 +)$--)$4&6 @? #" !& " E , " ' .6 (&!- '&(#, ,&81+&("# "$:& #, $!!&2" $'? &'&*$- #8 +1!) +"$"& #, '"&,&+"

D#2#3E D#2O7DG 3 0 /3424D! # 51,!)$ "DF /3 4 FDa2 B /3 424D #7 DI . B #D6

< '(@& " 81,")&, &'$!"&( )$" *)&'&4&, " +)$--)$22&' ")$" $? %%&($"& $'(+12&, #, &'$'" #8 +1!) $'(+6 #, $'? #")&, &'$'" #, 5&,+#')$4 '. $'? (&, 4$" 4& +"$"& #, '"&,&+" " +1!) 5,&% +&+ %%&($"&-? #, %&($"&-? 8,#%6 "),#1.)6 #, 1'(&, $'? +1!) %%&($"& +12&, #, &'$'" #8 +1!) $'(+6 X#")&, ")$" $2(&9!&2" &'$'"+ $" $!: &'" 8#, &$,+6 #, 8,#% &$, "# &$,6 #, $" E --6[+)$-- @& 1'$@-& #, 1'* -- '. "# 2$? #, $(4$'!& +1!) 1%+ #8 #'&? $+ +)$-- @& $+!&,"$ '&(6 $.,&&(6 #, $(>1(.&($+ $8#,&+$ ("# @& 2$?$@-& @? $'? +1!) 5&,+#' #, 5&,+#'+ ,&+2&!N " 4&-? 8#, #, #' $!!#1'" #8 +1!) 51,!)$+& #'&? #, #'", @1" #'" ,&+2&!" #8 +1!) 51,!)$+& #'&? $+ $8#,&+$ (6 " +)$-- $'(%$? @& -$*81- 8#, $'? #8 +1!) 5&,+#'+6 " - &1 #8 2$? '. #, $(4$'! '. $'? +1!) 1% #, 1%+ #8 #'&? ,&+2&!" 4&-?6 #, ")& *)#-& %#1'" ")&,&#8 ,&+2&!" 4&-?6 "# .,$'" "# ")& 5&,+#' #, 5&,+#'+ ,&+2&!" 4&-? &'"-&("# ,&!& 4& $'? +1!) 1,$ #, 1%+ #8 #'&?6 #, "# $'? #")&, 5&,+#' #, 5&,+#'+ *)# +)$-- @& * -- '. "# $(4$'!& +1!) 1% #, 1%+ #8 #'&?6 $ #,".$.& #8 ")& +$ ($'(+ $'(5,&% +&+ +#)&-(#, 2#++&++&(@?) % #, ")&% ,&+2&!" 4&-?6 #, #8 ")&, ,&+2&!" 4& +"$"& #, '"&,&+" ")&,& '6 X+1@>&!" '&4&,")&-&++ "# +1!) $''1$- &'" $+ $8#,&N +$ (6

+$ (6 $ ' (' "# $ ' ? &$(' & ' " 2$?$@-& ' ") &,&#1"6[8#, ' +&!1, ' . ' ") & 5$?N
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#8 $'? +1!) ,&+2&!" 4& $'(+ $'(5,&% +&+6 $'("# $22-? "# #, $22&$,
@&8#,& $'? #8 ")& +$ (#1," + $+ 5$," &+ "# $'? +1!) 5&" " #' #, 5,#N
!&&(' .+ $+)&,& 'B@&8#,& %&'" #'&(6 $'("# !#%2-? * ")$'(2&,8#,%
")& ,(&,+ #8 $'? #8 ")& +$ (#1,"+ ,&+2&!" ' . $'? +1!) #'", @1" #'
#'&? #, #")&, $""&,+$' (X8#, ")& 51,2#+& #8 2&,8#,% ' . $'?
+1!) ,(&,6 #, 8#, ,$ + ' . $'? +1!) 51,!)$+& #'&? #, #'", @1" #'
#'&?6 #, 8#, (# ' . #, 2&,8#,% ' . +1!) #")&, $""&,+ #,) ' .+ $+
+)$-- ' +1!) ,&+2&!" 4& $+&+ @& '&!&++$,? #, 2,#2&, 1'(&, ")& 5,#N
4 + #'+ #8 ") + !"[$-+# "# %$:& #, &9&!1"& $'? +1!) $-& #, #,".$.&
#8 ")& E)#-& #, $ 5#," #' #8 +1!) ,&+2&!" 4& $'(+ $'(5,&% +&+6 #,
+1!) ,&+2&!" 4& '"&,&+"+ #, +"$"&+ ")&,& ' $+ +)$-- @& '&!&++$,? #,
2,#2&, ' &$!) +1!) $+& $'($-+# "# $.,&& 8#, #, !$1+& "# @& ,&+&,4&(
#, ,&!#4&,$@-& #1" #8 +1!) ,&+2&!" 4& $'(+ $'(5,&% +&+6 #, +1!) ,&N
+2&!" 4& +"$"&+ #, '"&,&+"+6 +1!) $((" #'$- $''1$- &'" $+ $8#,&+$ (
$+ %$? @& '&!&++$,? #, 2,#2&, 1'(&, ")& 5,#4 + #'+ #8 ") + !"6 '
- &1 #8 5$?%&'" #8 $'? +1!) #'", @1" #' #'&? $'($-+# "# %$:&6
(#6 #, &9&!1"& $-- #")&, $""&,+6 !"+6 $'( ) ' .+ '&!&++$,? #,
2,#2&, 8#, ")& (1& 5&,8#,%$'!& #8 $'? #8 ")& +$ (,&+2&!" 4& !"+6 #,
8#, !#%2-? ' . * ") ")& 5,#4 + #'+ #, &9&!1" ' . ")& 5#*&,+)&,&#8 '
$'? ,&+2&!"6 $+ "# $'? +1!) $'(+6 ' ")& +$%& #, ' - :& $''&,6 $+
'&$,-? $+ ")&7 $"1,& #8 &$!) $+& * -- $(% "6 $+ 81--? $'(&88&!"1$--?6 "#
$-- '"&'"+ $'(51,2#+&+6 $'(+1@>&!" "# $-- ")& +$%& 1-&+ $'(&.1N
-$" #'+6 $+6 1'(&, ")& 5,#4 + #'+)&,&#86 $'? 5&,+#' #8 81-- .&6
@& ' . +#-&-? #, $@+#-1"&-? 2#++&++&(#8 #, &'" "-&(8#,) + #*' V+&
"# $'? &$+& #8 $'? +1!) $'(+6 #, $'? (&, 4$" 4& +"$"& #, '"&,&+"
")&,& '6 % .)" #, !#1-(%$:&6 (#6 #, D&DHI3D 3"D +$%& #, $'? #8
")&%

")&%' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !" ' $'(' ")$" *)&'&4&,' '' $'?' #8' ")&' 5,#4 + #'+' #8' ") +' !" ,&-$" '.' "#' $'?' +1!)' $'(+6' '' (&B' +!, @ '.' $'?' &'$'"6' $'(-#,(6' #,' #")&,' 5&,+#'6' $' E#,(' %2#," '.' ")&' '.1-$,' 1%@&,' #,' ")&' $+!1- '&' H&'(&,' #'-?' @&' 1+&(6' ")&' +$%&' +)$--' @&' 1'(&,+"##(' "#' '!-1(&' $'(' @&' $22- &(' "#' +&4&,$-' 5&,N +#'+' $+' *&--' $+' '&' 5&,+#'6' $'(' &%$-&+' $+' *&--' $+' $-&+6' $'(' "#' +1!)' #(&+' 5#- " !6' #,2#,$"&6' #,' #--&. $"&' $+' $8#,&+$ (6' $'(' "#' +1!)' #,2#,$" #'+' . . ,&.$"&' #,' #-&6' H1 -(+6' ,$"&, ' " &+6' #,' ,#")&,N)##(+6' #,2#,$"&' #,' '#" #,2#,$"&6' ,1+"&&+' 8#,')$, " &+' #,' #")&,' 21@- !' 51,2#+&+6' $'(' ,1+"&&+' 8#,' $'?' 5&,+#'' #,' 5&,+#'+6' $+' *&--' $+' "#' '(4 (1$-+' ' $'(' ")$" ")&' E#,(' \' $'(-#,(' ^' +)$--' &9"&'(' $+' *&--' "#' $'?' 5&,+#'' #,' 5&,+#'+6' #(?' #,2#,$"&6' 5#- " !6' #,' #--&. $"&6' #,' #")&,' #(?' #8' 5&,+#'+' &'" "-&(' "#' ,&!& 4&' $'?' &'"#1" #8' $'?' #8' +1!)' $'(+' $'(' 5,&% +&+6' $+' "#' 5&,+#'+' 1+1$--?' #,' -&.$--?' (&+ .'$"&(' @?' +1!)' E#,(' ' $'(' ")$" ")&' E#,(' \' &'$'"^' +)$--' &9"&'(' $+' *&--' "#' $'?' 5&,+#'' #,' 5&,+#'+6' #(?' 5#- " !6' #,2#,$"&6' #,' #--&. $"&6' #,' #")&,' #(?' #8' 5&,+#'+6' *)#' +)$--' @&' @#1'(' "#' 2$?' $'?' &'"#1" #8' $'?' #8' +1!)' $'(+' $'(' 5,&% +&+6' $+' "#' 5&,+#'+' 1+1$--?' #,' -&.$--?' (&+ .'$"&(' @?' +1!)' E#,(6' 1'-&++' '' $'?' #8' ")&' 8#,&.# '.' $+&+' ")&,&' @&' +#%&6' ") '.' '' ")&' 1@>&!" #,' #'"&9" ,&21.'$'"' "#' +1!)' #'+",1!" #'

*D. # 3 #' .' D/OE #' 3" E'

' '(' @&' " 81,")&,' &'$!"&(')$" *) -&' $'(' +#' -#'.' $+' $'?' &'$'" #,' &'$'"+6' &++&&' #,' &++&&+6')#-(' '.6' #,' *)#' +)$--' $" $'?' %&')&,&$8"&,')#-(' %%&($"&-?' 8,#%' $'(' 1'(&,' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !"6' $'?' $'(+6' 5,&% +&+6' #,' &,&("$B' %&'"+')&,&"#8#,&' @&-#'.' '.' #,' *) !)' +)$--')&,&$8"&,' @&-#'.' "#' $'?' +)#2, !:' 1' "&(' #,')&,&$8"&,' "#' @&' 1' "&(' "#' $'?' #")&,' ,!)6' @ +)#2, !:' #,' +)#2, !:6' $'(' *) !-' $'(+6' 5,&% +&+6' $'(' -&,&B' ("$%&'"+6' #,' ")&' &4&,+ #'' ")&,&#86' +)$--')$4&' @&&'' ",$'+8&,,&(' "#' $'(' 4&+"&(' '' ")&' +$ (' #%% ++ #'&,+' @?' 4 ,"1&' #8' ") +' !"6' +)$--' @&' (&+ ,#1+' #8')#-(' '.' +1!)' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+' @?' ")&' - :&' &'1,&' $+' ")&' +$%&')$4&' @&&'' ")&,&"#8#,&')#-(&'' @?6' $'(' +)$--' 8,#%' %&' "#' %&6' $" +1!)' 5&, #(+' $+' ")&' &$+&' '' +1!)' $'(+6' &'&%&'"+6' #,' &,&("$%&'"+' %$?')$4&' @&&'' ")&,&"#8#,&' 1+1$--?' ,&'&*&(6' #,' #1.)" "#' @&' ,&'&*&(' $!!#,('.' "#' ")&' !1+"#%$,?' $''&,' #8' ,&'&* '.' ")&' +$%&6' #,' *) !)' 9' #'")+' ")&,&$8"&,6' $22-?' 8#,' $' &'&*$-' #8' +1!)' &$+&6' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +' !" +)$--' $'(' %$?' $!!&2" $' 1,,&'(&,' #8' ")&' ")&' +1@+ +" '.' &$+&6' $'(' +)$--' $'(' $,&')&,&@?' ,&C1 ,&(' "#' (&% +&' $'&*' ")&' $'(+6' &'&%&'"+6' #,' &,&("$%&'"+' ")&,&' '' !#'"$ '&(' 8#,' +1!)' - :&' &,%' #,' '"&,&+' $+' %$?')$4&' @&&' .,$'"&(' ")&,&' '' @?' ")&' &$+&' +#' +1,,&'(&,&(6' ,&+&,4 '.' @?' +1!)' '&*' &$+&' ")&' $''1$-' &'" #,' &'"+' ")&,&"#8#,&' ,&+&,4&(' #1" #8' ")&' +$ (' $'(+6' 5,&% +&+6' $'(' &,&("$%&'"+' @?' ")&' &$+&' +#' +1,,&'(&,&(6' $'(' ,&!& 4 '.' '.' ")&' !#'+ (&,$" #'' #8' %$: '.' +1!)' '&*' &$+&' 5$?%&'" #8' +1!)' $' '&' $+' %$?' @&' &C1$-' "#' ")&' $4&,$.&' %#1'" #8' ")&' &'&*$-' &+' ")&,&"#8#,&' 2$ (' #,' $.,&&(' "#' @&' 2$ (' #,' !1+"#%$,?' 2$ (' #,' 2$?$@-&' 8#,' ")&' &'&*$-' #8' ")&' &$+&' #,' '"&,&+' '' +1!)' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+6' #,' ,&!& 4 '.' !#'+ (&,$" #'' 8#,' +1!)' $''1$-' &'" #,' &'"+' $'(' $4&,$.&' %#1'" #8' +1!)' &'&*$-' '&+' "#' @&' $+!&,"$ '&(' @?' $-' +1!)' $'(' ")&' - :&' &$+' '+' $+')&,&' 'B@&8#,&' 2,#4 (&(' 8#,' $+!&,"$ ' '.' ")&' +$%&' '' ")&' $+&' #8' 22- !$" #'+' 8#,' ")&' 51,!)$+&' #8' 5&,2&"1 " &+' 1'(&,' ") +' !"

A /' 3"D' =D^ #DZ27 .' D2EDE' "D7G' I#GD/' DDE' Z"D/D .' 3"D' DOC /27^ 3 DE' O26' OD' FDE3DG' # 3"D' (O O EE #' D/E' I#GD/' 3" E' H3

@"D/D' /D '
#DZDH7' D2EDE'
2CCD2/' 3' '
(O O EE #^
D/E' 7 ' OD' .'
4/D23D/' /'
7DEED/' 27 I D!'
77 Z2#HD' 3 '
OD' O2GD' 2H^
H /G #476
.' 2#6' * .^
.D/D#HD' 2/ ED'
3"D/D I C #!'
3"D' E2 O D'
E"277' OD'
/D.D//DG' 3 '
/O 3/23 #

' 5,#4 (&(' $-*$?+6' $'(' @&' "' &'$!"&(6')$"' '' !$+&' ")&' <$-1&' #8' $'?' '&*' &$+&' #,' '"&,&+"' +#' "#' @&' .,$'"&(' $+' $8#,&+$ (' +)$--' $"' $'?' %&' $22&$,' "#' ")&' +$ (' #%% ++ #'&,+' "#' @&' '!,&$+&(' #,' (% ' +)&(' '' $'?' $''&,' *)$"+#&4&,6' "' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' $!!&2"' #,' ,&C1 ,&' +1!)' .,&$"&,' #,' -&++&,' &'&*$-' '&' #,' '&+' $+' '' ")& ,' R1(.%&'"' %$?' @&' >1+"' $'(' ,&$+#'$@-&' * ")' ,&.$,(' "#' +1!)' '!,&$+&(' #,' (% ' +)&(' <$-1&] 5,#N 4 (&(' '&4&,")&-&++6' ")$"' 8' $'?' 3 88&,&'!&' $+' "#' ")&' '!,&$+&' #,' &(1!" #'' #8' +1!)' $4&,$.&' &'&*$-' '&' +)#1-(' $, +&' @&"*&&'' ")&' +$ (' #%% ++ #'&,+' $'(' ")&' &'$'"' #,' &'$'"+6' &++&&' #,' &++&&+' !-$ % '.' +1!)' &'&*$-6' ")&' +$%&' +)$--' @&' ,&8&,,&(' "#' ")&' 3&"&,% N '$" #'' #8'),&&' ,@ ",$"#,+6' "#' @&' $22# '"&(' '' %$''&,')&,& 'B@&8#,&' 2,#4 (&(' 8#,' ")&' 22# '"%&'"' #8' ,@ ",$"#,+' "#' $(>1+"' 3 88&,&'!&+' @&"*&&'' ")&' +$ (' #%% ++ #'&,+' $'(' &'$'"+' #,' &++&&+' $22-? '.' 8#,' ")&' 51,!)$+&' #8' 5&,2&"1 " &+' 1'(&,' ") +' !"6' $'(' * ")' ")&' - :&' 5#*&,+' $'(' 1")#, " &+' +#' 8$,' $+' ")&' +$%&' $,&' $22- !$@-&' $'(' ")&' 3&"&,% '$" #'' #8' +1!)' ,@ ",$"#,+' $+' "#' ")&' %#1'"' #8' +1!)' '!,&$+&' #,' &(1!" #'' #8' ")&' +$ (' '&' +)$--' @&' !#'!-1+ 4&' $'(' @ '('.' 12#'' $--' 5&,+#'+' *)#%+#&4&,' $'(' ")&' 92&'!&' #8' +1!)' ,@ ",$" #'' +)$--' @&' @#,'&' @?' ")&' +$ (' #%% ++ #'&,+6' #,' @?' ")&' +$ (' &'$'"' #,' &'$'"+6' #,' &++&&' #,' &++&&+6' $+' +1!)' ,@ ",$"#,+' +)$--' (,&!"

/H"O E" C!'
H' # 2#6'
D2ED' O2GD'
2.3D/' C2EE #4'
3' 3" E' H3!'
E"277' /DED/FD'
. /OD/'
2##I27' =D#3'
#76!' D&H7 I G^
#4' 2#6' I O'
2GGDG' 3"D/D3 '
E #HD' T3"'
I4 I E3' Q

K ' '(' @&' "' 81,")&,' &'$!"&(6')$"' "' +)$--' $'(' %$?' @&' -$*81-' 8#,' $'?' ,!)@ +)#2' #,' +)#26' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' '' $'?' &$+&' #,' 3&% +&' #8' $'?' $'(+' #,' 5,&% +&+' "#' @&' %$(&' @?') %' '' .)"' #8') +' &&' #,' #")&,' 2 , "1$-' 5,#%#" #'6' $8"&,' ")&' 2$++ '.' #8' ") +' !"6' #,' 8#,' ")&' +$ (' #%% ++ #'&,+6' '' $'?' &$+&' #,' 3&% +&' "#' @&' %$(&' @?' ")&%' #8' $'?' $'(+' $'(' 5,&% +&+' 4&+"&(' '' ")&%' 21,+1$'"' "#' ")&' 5,#4 + #'+' #8' ") +' !"6' "#' +&2$,$"&' $'?' $((" #'$-' &'"' #,' 1%' ,&+&,4&(' '' !#'+&C1&'!&' #8' ")&')$'.&' '' ")&' $@ - "?' "#' ")&' 5$?N %&'"' #8' #%2#+ " #'' 8#,' ")&+' '' $'?' &$+&' #,' 3&% +&' #8' $'?' +1!)' $'(+' $'(' 5,&% +&+' %$(&' @?') %' #,' ")&%' + '!&' ")&' 9"&&'")' 3$?' #8' ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B"*#' 8,#%' ")&' 8#,%&,' $'(' !1+"#%$,?' $''1$-' &'"' #,' &'"+' ")&,&"#8#,&' ,&+&,4&(' $'(' 2$?$@-&' #1"' #8' +1!)' $'(+' $'(' 5,&% +&6' $'(' "#' ,&+&,4&' +1!)' 8#,%&,' $'(' !1+"#%$,?' $''1$-' &'"' #,' &'"+' '' $'?' '&*' &$+&' #,' 3&% +&' "#' @&' %$(&' ")&,&#8' @?') %' #,' ")&%' $8"&,' ")&' 2$++ '.' #8' ") +' !"

) ' D2ED'
O2GD' O6' 2#6'
/H"O E" C!'
% ' 2.3D/' 3"D'
C2EE #4' .'
3" E' H3' E"277'
OD' GDD O DG' 2
D2ED' Z 3" #
3"D' BD2# #4'
: '@ '
H' 'E ' 2E'
3 ' D#3 37D'
D#2#3' 3 '
" 7G' 2#GE'
3"D ./DD

' '(' @&' "' 81,")&,' &'$!"&(6')$"' '#' &$+&' #,' 3&% +&' #8' $'?' $'(+' $'(' 5,&% +&+' "#' @&' %$(&' @?' $'?' ,!)@ +)#2' #,' +)#26' #,' #")&,' !!-&+ $+" !$-' 5&,+#'6' $8"&,' ")&' 2$++ '.' #8' ") +' !"6' #,' @?' ")&' +$ (' #%% ++ #'&,+' #8' $'?' $'(+' $'(' 5,&% +&+' 4&+"&(' #,' *) !)' %$?' 4&+"' '' ")&%' 21,+1$'"' "#' ") +' !"6' +)$--' @&' (&&%&(' #,' "$:&'' "#' @&' $-&"' '.6' +&"' '.6' #,' (&% +' '.' #8' $'?' $'(+' $'(' 5,&N % +&+' * ") '' ")&' &$' '.' #8' $'' !"' 2$++&(' '' ")&' &!#'(' $'(') ,(' &$,+' #8' ")&' & .' #8' +' $>&+"?' D '.' / *' ")&' #1,")6' 'N " "1-&(' ' ' ' * '5 ' ' ' ' ' '1 '
1 ' ' ' ' ' ' . '6 ' ' ' ') ' '
B ' O ' H&#,.&' ' 1 ' ' ' ' " ' '
* ' ' 5 ' ' ,&-$'(6' ' ' * + ' ' '
* ' +#' $+' "#' &'"' "-&' ")&' &++&&' #,' &'$'"' ")&,&#8' "#')#-(' ")&' +$ (' $'(+' $'(' 5,&% +&+' 8,&&' 8,#%' ")&' 5$?%&'"' #8' ")&+' #,' #%N 2#+ " #'' 8#,' ")&+

< ' P ' (' @&' "' 81,")&,' &'$!"&(6')$"' *)&'&4&,' $'?' #" !&') 3 HDE'
,&C1 ,&(' "# @&' . 4&"' @?' ") +' !"6' #,' *)&'&4&,' $'?' &,4 !&' #8' $'?'
,(&,'#,'#")&,' 5,#!&&(' .' #8'$'?' #1," *) !)' +)$--' @&' ,&C1 ,&(' #,' @&' ED/FDG!'
'&!&++$,?' 8#,' !$,,? ' .' '"#' &88&!" $'?' #8' ")&' 5,#4 + #'+' #8' ") +' !"6'
!$''#" @&' . 4&"' #,' (&- 4&,&(' "#' #,' !$''#" @&' &88&!"&(6' 12#"' ")&'
5$,"?' #,' 5&,+#"' #,' 5&,+#'+' "#' #,' 8#,' *)#%' +1!)' #" !&' +' (,&!"&(' #,'
'"&'(&(6' #,' 12#"' *)#%' +1!)' &,4 !&' +' "#' @&' &88&!"&(6' "' +)$--' @&'
+188 ! &'"' 8#,' ")&' 5$,"?' #,' 5&,+#"' #@- .&(' "#' . 4&' +1!)' #" !&' #,' &88&!"
+1!)' &,4 !&' "#' -&$4&' +1!)' #" !&6' #,' $' #2?' #8' +1!)' ,(&,'#,' 5,#N
!&&(' .6' $"' ")&' -$+"' #,' %#+"' 1+1$-' 5-$!&' #8' @#(&' #8' +1!)' 5$,"?' #,'
5&,+#"' #,' 5&,+#'+' "#' #,' 12#"' *)#%' +1!)' #" !&' +' "#' @&' . 4&"' #,'
&,4 !&' &88&!"&(6' 8' ")&' +$%&' +)$--' @&' * ") "' ' $'(' 8' ")&' +$%&'
+)$--' '#" @&' * ") "' ' ")&"' "#' +&,4&' +1!)' #" !&' #,' +1!)' #2?'
12#"' ")&' .&'"' #,' &!& 4&,' #8' ")&' &'"+' #8' +1!)' 5$,"?' #,' 5&,+#"' #,'
5&,+#'+6' $'(' 8' +1!)' .&'"' #,' &!& 4&,' !$''#" @&' (+!#4&,&(6' ")&'"
"' +)$--' @&' +188 ! &'"' "#' 21@- +)' +1!)' #" !&6' #,' "#' . 4&' #" !&' #8' +1!)'
,(&,'#,' 5,#!&&(' .6' @?' 21@- +) ' .' #" !&' ")&,&#8'),&&' %&+' "' ")&'
' " ' K ' $'(' $-+#' "#' . 4&' +1!)' #" !&' "#' #,' %$:&' +1!)' &,4 !&'
12#"' $'?' 2, '! 2$-' !!12 &,' #8' $'?' #8' ")&' +$ (' $'(+' $'(' 5,&% +&+'
,&+2&!" 4&-?' "#' *) !)' +1!)' #" !&6' ,(&,6' #,' 5 #!&&(' .' +)$--' ,&-$"&

< ' '(' @&' "' 81,")&,' &'$!"&(')$"' ")&' +$ (' #%% ++ #'&,+' + ZD/' . /'
1'(&,' ") +' !"' +)$--')$4&' 5#*&,' $'(' 1")#, "?6' $'(' $,&')&,&@?' &%B' (O O E'
2#*&,&(' $'(' $1")#, L&(6' 8,#%' %&' "#' %&' "#' $(% ' +"&,' $"' $")' &9$''4^
"#' $'?' 5&,+#"' #,' 5&,+#'+' *)#' +)$--' $"' $'?' %&' . 4&' ")&%' '8#,%$B' 23" '
" #"' #,' @&' &9$% '&(' #8'#,' !#'!&,' ' .' $'?' $""&,'#,') ' .' ,&-$" ' .' "#'
")&' 9&!1" #"' #8' ") +' !"6' #,' $'?' *$?' !#'!&,' ' .' ")&' +&4&,$-' 5#*&,+'
$'(' ,1+"+' "' ")&%')&,&@?' ,&2#+&(6' $'(' ")&' (1&' 9&!1" #"' ")&,&#8

< ' '(' @&' "' 81,")&,' &'$!"&(')$"' ") +' !"' %$?' @&' $-"&,&(6' H3' O26' OD'
$%&'(&(6' #,' ,&2&$-&(' @?' $'?' !"' #,' !"+' "#' @&' %$(&' "' ") +' 2,&+&'"' $-"&,&('
&++ #"' #8' 5$,- $%&'"

(6 7' '(' @&' "' 81,")&,' &'$!"&(')$"' ")&' !)&(1-&+' X [' H"DG I7DE' "#
$'(' X [' "#' ") +' !"' $''&9&(' +)$--' @&' (&&%&(' $'(' "$:&"' "#' @&' 5$," OD' 32]D#' 2E'
")&,&#8' $+' 81--?' $'(' &'" ,&-?' "#' $--' '"&''+' $'(' 51,2#+&+' $+' 8' '+&,"&(' 7 !"'
)&,& '

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å L (> * M P 5 !

#'"$ ' '.")& 8 & , 9"# OD %2#+&(12#' $-- &'&8 !&+6 3 .N ' "&+6 $'(#")&, 2 , "1$- 5,#%#" #'+ 1'(&, ")& $':' #8 +)#2, !:+

27ID .' D#D. HD		("2/4D			27ID .' D#D. HD		("2/4D		
&HDDG #4	#G # 3 D&HDDG #4	CD/ (D#3			&HDDG #4	#G # 3 D&HDDG #4	CD/ (D#3		
Z	Z		,	G	Z	Z	Z	V	,
UU	UV		U	U	VV	TV	3	U	M
UV	V		V	U	TV	V			T
V	V		U	U	V	QV		V	U
V	V		V	U	QV	V			T
V	V		U	U	V	QUV	7	U	U
V	VV		V	U	QUV	Q V	U		T
VV	TV		U	U	Q V	Q V	U	V	U
TV	V		V	U	Q V	Q V	U		T
V	QV		U	U	Q V	Q V	U	U	U
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, ' 2#G' H"2/4D2O7D' 3 ' +2/ E"DE' #' . '
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I#37' 3"D' A /E3' *26' .' - *' '#D' 3" IE2#G' D4"3'
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")&' 5&$!&6' 4&,+&&,+6')1,!) *$,(&'+6' #'+"$@-&+6' $' (' #")&, ' 5&,+#'+'
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E 8&6') -(' #, ') -(,&' ' $+' $8#,&+$ (6' * ") ' +1!)' #1' "?6' (' .6
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5##,6' #" ' *)#+&' #%2-$ '"' +1!)' ,(&, ' #8' &%#4$-' +)$--' @&' %$(&' $+' 7' /DC2 G'
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3 4 + #'6' #, ' @&,"?' ' *) !)' +1!)' 5$, +)6' #*' '+) 26' #, ' 5-$!&' %$ 'N
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< ' '(

> Z' &'
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> Z' &^
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< ' '(' @&' "81,")&,'&'$!"&(')$"' '' $'?' "?6' #,#1.)6' #*''
#,2#,$"&6' 3 4 + #'6' #,' @&,"?' *) !)' (#&+' '#" !#'", @1"&' "#' ")&'
#1'"?' $"&6' #,' '' *) !)' '#' #1'"?' $"&' +)$--' @&' %$(&6' ,$ +&(6' #,'
-&4 &(6' ")&')$,.&+' $'(' 92&'!&+' 2$ (' 8#,' ")&' 51,2#+&+' $8#,&+$ (' @?'
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#*'+) 26' ' ' ' ' ' * ' " 6bP] '(' *)&,&$+' 12#''
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$' &""-&%&'"' '' '.-$'(6' $'(' ")$"')&')$")' $' E 8&' '$%&('
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'& ")&,' #8' *) !)') -(,&'')$4&' .$ '&(' $'?' &""-&%&'"' '' '.-$'(']
)&+&' $,&' ")&,&8#,&' "#' ,&C1 ,&' ?#1' ")&' +$ (' #'+"$@-&' #8'
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) +' E 8&' $'(' $% -?' $8#,&+$ (6' "#' !#"-$'(' h#,' ,&-$'(6'
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")&ʹ #1,'ʹ #8ʹ D '.;+ʹ &'!)6ʹ $+"&,ʹ #8ʹ ")&ʹ #--+6ʹ < !&ʹ)$'!&--#,ʹ
#8ʹ . ʹ #,(ʹ) &8ʹ R1+" !&ʹ #,ʹ R1(.&ʹ #8ʹ ")&ʹ #1,'ʹ #8ʹ #%%#'ʹ
5-&$+6ʹ #,(ʹ) &8ʹ $,#'ʹ #,ʹ $,#'ʹ #8ʹ ")&ʹ #1,'ʹ #8ʹ 9!)&C1&,6ʹ R1(.&ʹ
#8ʹ ")&ʹ 5,&,#.$" 4&ʹ #1,'ʹ #8ʹ ")&ʹ #,(ʹ ,!)@ +)#2ʹ #8ʹ " ʹ
R1(.&ʹ #8ʹ ")&ʹ .)ʹ #1,'ʹ #8ʹ (% 8$-"?6ʹ $'(ʹ) &8ʹ R1(.&ʹ #8ʹ ")&ʹ
#1,'ʹ "ʹ $':,12"!?6ʹ $'(ʹ $-+#ʹ $8-ʹ 5&,+#'+6ʹ &%@&,+ʹ #8ʹ +ʹ $N
>&+"?;+ʹ 5, 4?ʹ #1'! -6ʹ *)#ʹ +)$--ʹ)$4&ʹ @&&'ʹ 5,&+ (&'ʹ ")&,&#8ʹ /)&-(ʹ
")&ʹ 88 !&ʹ #8ʹ #,(ʹ)$'!&--#,ʹ #8ʹ ʹ(ʹ #,ʹ 7$Vʹ)$4&ʹ)&-(ʹ
$'?ʹ #8ʹ ")&ʹ #")&,ʹ 88 !&+ʹ)&,& 'B@&8#,&ʹ %&'" #'&(6ʹ +)$--ʹ 8#,%ʹ $ʹ
#%% ""&&ʹ #8ʹ +ʹ $>&+"?;+ʹ +$ (ʹ 5, 4?ʹ #1'! -6ʹ $'(ʹ +)$--ʹ @&ʹ +"?-&(ʹ
\ʹ)&ʹ R1(! $-ʹ #%% ""&&ʹ #8ʹ ")&ʹ 5, 4?ʹ #1'! -ʹ^ʹ 5,#4 (&(ʹ '&4&,N
")&-&++6ʹ ")$'ʹ +)$--ʹ @&ʹ -$*81-ʹ 8#,ʹ +ʹ $>&+"?ʹ 8,#%ʹ %&ʹ "#ʹ %&6ʹ
$+ʹ $'(ʹ *)&'ʹ &ʹ +)$--ʹ ")'.ʹ 8 "6ʹ @?ʹ +ʹ .'ʹ $'1$-6ʹ "#ʹ $22# '"ʹ $'?ʹ
*#ʹ #")&,ʹ 5&,+#'+6ʹ @& '.ʹ 5, 4?ʹ #1'! --#,+6ʹ "#ʹ @&ʹ &%@&,+ʹ #8ʹ ")&ʹ
+$ (ʹ #%% ""&&

ʹ '(ʹ @&ʹ 'ʹ 81,")&,ʹ &'$!"&(ʹ)$"ʹ 8,#%ʹ $'(ʹ $8"&,ʹ ")&ʹ ,+"ʹ 3$?ʹ
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22- !$" #'+ʹ 'ʹ 5, L&ʹ 1 "+ʹ $'(ʹ 'ʹ $--ʹ #")&,ʹ 1 "+ʹ #,ʹ 5,#!&&('.+ʹ 'ʹ
")&ʹ #1,"+ʹ #8ʹ (% ,$-"?6ʹ #,ʹ < !&ʹ (% ,$-"?ʹ #1,"+6ʹ #,ʹ $'?ʹ ")&,ʹ
#1,'ʹ 'ʹ ")&ʹ 5-$'"$" #'+ʹ ʹ * ʹ $'(ʹ ")&,ʹ +ʹ $>&+"?;+B3#N
% ' #'+ʹ #,ʹ &-+&*)&,&ʹ @,#$(6ʹ *) !)ʹ %$?ʹ '#*6ʹ @?ʹ 4 ,"1&ʹ #8ʹ $'?ʹ
$*6ʹ "$"1"&6ʹ #,'% ++ #'6ʹ #,ʹ V+$.&6ʹ @&ʹ %$(&ʹ "#ʹ ")&ʹ .)ʹ #1,'ʹ
#8ʹ (% ,$-"?ʹ 'ʹ . ʹ #,ʹ "#ʹ ")&ʹ #,(+ʹ #%% ++ #'&,+ʹ 'ʹ 5, L&ʹ
$+&+6ʹ +)$--ʹ @&ʹ %$(&ʹ "#ʹ +ʹ $>&+"?ʹ 'ʹ #1'! -6ʹ $'(ʹ '#'ʹ "#ʹ ")&ʹ +$ (ʹ
.)ʹ #1,'ʹ #8ʹ (% ,$-"?ʹ 'ʹ . ʹ #,ʹ "#ʹ +1!)ʹ #%% ++ #'&,+ʹ $+ʹ
$8#,&+$ ($'(ʹ +1!)ʹ 22&$-+ʹ +)$--ʹ @&ʹ %$(&ʹ 'ʹ ")&ʹ +$%&ʹ $''&,ʹ $'(ʹ
#,%ʹ $'(ʹ * ") 'ʹ +1!)ʹ % ʹ *)&,& 'ʹ +1!)ʹ 22&$-+ʹ % .)"6ʹ 8ʹ ") +ʹ !'ʹ
)$(ʹ '#'ʹ @&&'ʹ 2$++&(6ʹ)$4&ʹ @&&'ʹ %$(&ʹ "#ʹ ")&ʹ +$ (ʹ .)ʹ #1,'ʹ #8ʹ
ʹ (% ,$-"?ʹ #,ʹ "#ʹ ")&ʹ #,(+ʹ #%% ++ #'&,+ʹ 'ʹ 5, L&ʹ $+&+ʹ ,&+2&!" 4&7ʹ
$'(ʹ ")$'ʹ $--ʹ $*+ʹ #,ʹ "$"1"&+ʹ '#*ʹ 'ʹ 8#,!&ʹ * ")ʹ ,&+2&!'ʹ "#ʹ $'?ʹ +1!)
22&$-+

$ ' $ B ' ' (2C' V

22&$-+' #,' 22- !$" #'+' +)$--' $22-?' "#' $'?' 22&$-+' "#' @&' %$(&' '' 21,+1$'!&' #8'") +' !'' "#' +' $>&+"?' '' #1'! -

' '(' @&' '' 81,")&,' &'$!"&(6')$'' $--' 22&$-+' #,' #%2-$ '"+' '' ")&' $"1,&' #8' 22&$-+' *)$"&4&,6' *) !)' &")&,' @?' 41U'1g' #8' ") +' !"6' #,' #8' $'?' $*6' "$"1"&6' #,' 1+"#%6' %$?' @&' @,#1.)'' @&8#,&' +' $>&+"?' #,' +' $>&+"?' '' #1'! -' 8,#%' #,' '' ,&+2&!'' #8' ")&' 3&"&,% B' '"# '$" #'6' &'"&'!&6' 1-&6' #,' ,(&,' #8' $'?' #1,"6' R1(.&6' #,' >1(! $-' 88 !&,6' $'(' $--' +1!)' 22&$-+' $+' $,&' '#*' 2&'('.' $'(' 1')&$,(6' +)$-- 8,#%' $'(' $8"&,' ")&' 2$++ '.' #8' ") +' !'' @&' ,&8&,,&(' @?' +' $>&+"?' "#' ")&' +$ (' R1(! $-' #%% ""&&' #8' +' 5, 4?' #1'! -6' $'(' ")$'' +1!)' 22&$-+6' $1+&+6' $'(' $""&,+' +)$--' @&')&$,(' @?' ")&' +$ (' R1(! $-' #%% ""&&6' $'(' $' &2#,'' #,' &!#%%&'($" #'' ")&,&#'' +)$--' @&' %$(&' "#' +' $>&+"?' '' #1'! -' 8#,' +' 3&! + #'' ")&,&#'' $+')&,&"#8#,&6' '' ")&' +$%&' $''&,' $'(' #,%' $+')$+' @&&'')&,&"#8#,&' ")&' 1+"#%' * ")' ,&+2&!'' "#' $""&,+' ,&8&,,&(' @?' +' $>&+"?' "#' ")&' *)#-&' #8' +' 5, 4?' #1'! -' #,' $' #%% ""&&' ")&,&#8' X")&' $"1,&' #8' +1!)' &2#,'' #,' &!#%%&'($" #'' @&' '.' $-*$?+' +"$"&(' '' #2&'' #1,"[

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' '' +)$--' @&' -$*81-' 8#,' +' $ &+"?' "#' ,&8&,' "#' ")&' +$ (' R1(! $-' #%% ""&&' 8#,' &$, '.' #,' #'B' + (&,$" #'' $'?' +1!)' #")&,' $""&,+' *)$"+#&4&,' $+' +' $>&+"?' +)$--' ") ':' 8 "6' $'(' +1!)' #%% ""&&' +)$--' ")&,&12#'')&$,' #,' !#'+ (&,' ")&' +$%&6' $'(' +)$--' $(4 +&' +' $>&+"?' ")&,&#'' '' %$''&,' $8#,&+$ (

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' '#' $""&,' +)$--' @&')&$,(6' '#,' +)$--' $'?' ,(&,6' &2#,"6' #,' &!#%%&'($" #'' @&' %$(&6' @?' ")&' +$ (' R1(! $-' #%% ""&&6' '' 21,+1$'!&' #8' ") +' !"6' 1'-&++' '' ")&' 5,&B' +&'!&' #8' $'' -&$+'' #1,' &%@&,+' #8' ")&' +$ (' #%% ""&&' $'(' ")$'' '#' &2#,'' #,' &!#%%&'($" #'' +)$--' @&' %$(&' "#' +' $>&+"?' 1'-&++' $' ")&' $>#,"?' #8' ")&' &%@&,+' #8' +1!)' R1(! $-' #%% ""&&' 2,&+&'' $'' ")&' &$, '.' +)$--' !#'!1,' '' +1!)' &2#,'' #,' &!#%%&'($" #'' 5,#4 (&(' $-*$?+6' ")$'' '#")' '.')&,&' '' !#'"$ '&(' +)$--' 2,&4&'' +' $>&+"?6' 8 &' +)$--' ") ':' 8 "6' 8,#%' +1%%#' '.' $'?' #")&,' #8")&' &%@&,+' #8' +' $>&+"?' ")&' +$ (' 5, 4?' #1'! -' "#' $""&'(' ")&' &&" '.+' #8' ")&' +$ (' #%% ""&&

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' '' !$+&' +' $>&+"?' +)$--' @&' 2-&$+&(6' @?' 3 ,&!" #'+' 1'(&,' +' .'' $'1$-6' "#' ,&C1 ,&' ")&' ""&'($'!&' $'' ")&' +$ (' #%% ""&&' 8#,' ")&' 51,2#+&' #8' ") +' !'' #8' $'?' &%@&,' #,' &%@&,+' #8' ")&' +$ (' 5, 4?' #1'! -' *)#' +)$--' @&' $' R1(.&' #,' R1(.&+' #8' ")&' #1,'' #8' D '.;+' &'!)6' #,' #8' ")&' #1,'' #8' #%%#'' 5-&$+6' #,' #8' ")&' #1,'' #8' 9!)&C1&,6' +1!)' ,,$'.&%&'"+' 8#,' (+2&'+ '.' *")' ")&' "&'($'!&' #8' +1!)' R1(.&' #,' R1(.&+' 12#'') +' #,' ")&' ,' #,('$,?' 31" &+' (1, '.' ")&' %&' #8' +1!)' "&'($'!&' $'(' 5, 4?' #1'! -' $+' $ @,&+$ (' +)$--' @&' %$(&' @?' ")&' R1(.&+' #8' ")&' #1,' '' #,' #1,"+' #' *) !)' +1!)' R1(.&' #,' R1(.&+' +)$--' @&-#'.' ,&+2&!" 4&-?' '' ,&.$,(' "#' ")&' 1+ '&++' #8' ")&' #1,'' $'(' @?' ")&' R1(.&+' #8' ")&' +$ ('),&&' #1,"+6' #,' @?' $'?' .)'' #,' %#,&' #8' +1!)' R1(.&+6' '!-1('.' ")&') &8+' #8' ")&' +&4&,$-' #1,"+6' ''.&.$,(' "#' $#")&,' 31" &+6' $+' %$?' @&' '&!&++$,?' $'(' !#'+ +"&'' * ")' ")&' 51@- !' &,4 !&

< ' '(' @&' '' &'$!"&(')$'' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' R1(! $-' #%% ""&&6' '' $'?' $""&,' *) !)' +)$--' @&' ,&8&,,&(' "#' +1!)' #%% ""&&6' "#

T ʿ ʿ ʿ B ʿ ʿ (2Cʿ

IC #Z/ 33D# *DC E3 #Eʿ

"#ʿ &9$% '&ʿ E "'&++&+ʿ @?ʿ E#,(ʿ #8ʿ #1")6ʿ X$'(ʿ &")&,ʿ @&8#,&ʿ #,ʿ $8"&,ʿ 9$% '$" #"ʿ @?ʿ 3&2#+ "#'6[#,ʿ "#ʿ (,&!" ")$" ")&ʿ 3&2#+ "#'+ʿ #8ʿ $'?ʿ E "'&++ʿ +)$--ʿ @&ʿ "$:&'ʿ ʿ E, "'.ʿ @?ʿ ")&ʿ &. +",$,ʿ #8ʿ ")&ʿ +$ (ʿ 5, 4?ʿ #1'! -ʿ "#ʿ @&ʿ $22# '"&(ʿ @?ʿ +ʿ $>&+"?ʿ $+ʿ)&,& 'B$8"&,ʿ %&'" #'&(6ʿ #,ʿ @?ʿ +1!)U#")&,ʿ 5&,+#" #,ʿ 5&,+#'+6ʿ $'(ʿ ʿ +1!)ʿ $''&,6ʿ ,(&,6ʿ $'(ʿ #1,+&6ʿ $+ʿ +ʿ $>&+"?ʿ ʿ #1'! -#,ʿ")&ʿ +$ (ʿR1(! $-ʿ #%% ""&&ʿ +)$--ʿ $22# '"$'((,&!"ʿ $'(")$"")&ʿ +$ (ʿ &. +",$,ʿ $'(ʿ +1!)ʿ #")&,ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ +# "#ʿ @&ʿ $22# '"&(ʿ +)$--ʿ)$4&ʿ ")&ʿ +$%&ʿ 5#*&,+ʿ $+ʿ $,&ʿ '#?,ʿ 2#++&++&(ʿ @?ʿ $"ʿ 9$% '&,ʿ #8ʿ ")&ʿ .)ʿ #1,"#8ʿ)$'!&,?ʿ #,ʿ #8ʿ $'?ʿ #1,"ʿ !!-&+ $+" !$-

(# # 33DDʿ 026ʿ /GD/ʿ 2#6C2/7 HI72/ʿ @ 3#DEEDEʿ 3 ʿ ODʿ D&2O #DG!ʿ 2#Gʿ 2E 3 ʿ 2#6 C2/3 HI72/ʿ @2H3E!ʿ 2#Gʿ 026ʿ /DO 3ʿ (2IEDEʿ. /ʿ /D"D2/ #4

< ʿ '(ʿ @&ʿ "&'$!"&(6ʿ)$"ʿ $'?ʿ $""&,ʿ *) !)ʿ +)$--ʿ !#%&ʿ @&8#,&ʿ ")&ʿ +$ (ʿ R1(! $-ʿ #%% ""&&ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ #%% ""&&ʿ "#ʿ (,&!" ")$" +1!)ʿ E "'&++&+ʿ +)$--ʿ @&ʿ &9$% '&(ʿ #,ʿ ,&N &9$% '&(6ʿ $'(ʿ $+ʿ "#ʿ +1!)ʿ $!"+ʿ $+ʿ "#ʿ ")&ʿ +$ (ʿ #%'$ ""&&ʿ +)$--ʿ +&&%6ʿ 8 "6ʿ '#"* ")+"$'('.ʿ $'?ʿ +1!)ʿ E "'&++ʿ %$?ʿ '#"ʿ)$4&ʿ @&&'ʿ &9$% '&(6ʿ #,ʿ '#ʿ 4 (&'!&ʿ %$?ʿ)$4&ʿ @&&'ʿ .4&'ʿ #"ʿ $'?ʿ +1!)ʿ $!"+ʿ ʿ $ 2,&4 #1+ʿ "$.&ʿ #8ʿ ")&ʿ $""&,ʿ ʿ $'(ʿ ʿ +)$--ʿ $-+#ʿ @&ʿ -$*81-ʿ 8#,ʿ +ʿ $>&+"?ʿ ʿ #1'! -6ʿ #"ʿ ")&ʿ &2#%%&'($"#"ʿ #8ʿ ")&ʿ +$ (ʿ #%% ""&&6ʿ 12#"ʿ $'?ʿ 22&$-6ʿ "#ʿ ,&%ʿ ")&ʿ $""&,ʿ *) !)ʿ +)$--ʿ @&ʿ ")&ʿ 1@>&!"ʿ #8ʿ +1!)ʿ 22&$-ʿ "#ʿ ")&ʿ #1,"8,#%6ʿ ")&ʿ 3&! +#"ʿ #8ʿ *) !)ʿ +1!)ʿ 22&$-ʿ +)$--ʿ)$4&ʿ @&&'ʿ %$(&6ʿ $'(ʿ $"ʿ")&ʿ +$%&ʿ %&ʿ "#ʿ (,&!" ")$" +1!)ʿ #1,"ʿ +)$--ʿ ,&)&$,ʿ +1!)ʿ $""&,6ʿ ʿ +1!)ʿ #,%6ʿ $'(ʿ&")&,ʿ .&'&,$--?ʿ #,ʿ 12#"ʿ !&,N "$ ʿ 5#'"+ʿ #'-?6ʿ $'(ʿ)2#"ʿ +1!)ʿ ,&)&$,ʿ '.ʿ "$:&ʿ +1)ʿ $(("#'$-ʿ 4 (&'!&6ʿ ")#1.)ʿ @&8#,&ʿ ,&>&!"&(6ʿ #,ʿ ,&>&!"ʿ +1!)ʿ 4 (&'!&ʿ @&8#,&ʿ $(% ""&(6ʿ $+ʿ +ʿ $>&+"?ʿ ʿ #1'! -ʿ +)$--ʿ (,&!"ʿ $'(ʿ81,")&,6ʿ #"ʿ $'?ʿ +1!)ʿ ,&% ""'.ʿ #,ʿ #")&,* +&6ʿ "+)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ʿ $>&+"?ʿ ʿ #1'! -ʿ "#ʿ (,&!" ")$"ʿ '&ʿ #,ʿ %#,&ʿ 8&. '&(ʿ ++1&ʿ #,ʿ ++1&+ʿ +)$--ʿ @&ʿ ", &(ʿ "$'?ʿ #1,"ʿ "$'?#8ʿ +ʿ $>&+"?;+ 3#% '#'+ʿ @,#$(6ʿ 8#,ʿ $'?ʿ 51,2#+&ʿ 8#,ʿ *) !)ʿ +1!)ʿ ++1&ʿ #,ʿ ++1&+ʿ +)$--ʿ "#ʿ +ʿ $>&+"?ʿ #1'! -ʿ +&&%6ʿ 2,#2&,

@ 3#DEEDEʿ 3 ʿ ODʿ D&2O #DGʿ #ʿ '23"!ʿ 2#G 51' +)%&'"^ . /ʿ +D/5I/Fʿ

@&ʿ "&'$!"&(ʿ)$"ʿ &4&,?ʿ E "'&++ʿ *)#ʿ +)$--ʿ @&ʿ &9$% '&(ʿ21,+1$'!&ʿ #8ʿ ")+ʿ !"ʿ +)$--ʿ .4&ʿ)+ʿ #,ʿ)&,ʿ 4 (&'!&ʿ 12#"ʿ $")6ʿ #,ʿ 8ʿ $ T1$:&,ʿ #,ʿ #,$4 $"ʿ 12#"ʿ +#-&%'ʿ 88 ,%$"#'6ʿ *) !)ʿ $")ʿ $'(ʿ 88 ,%$"#'ʿ ,&+2&!" 4&-?ʿ +)$--ʿ @&ʿ $(% ' +"&,&(ʿ@?ʿ")&ʿ +$ (ʿR1(! $-ʿ #%% ""&&ʿ $'(ʿ &. +",$,6ʿ $'(ʿ (ʿ@?ʿ+1!)ʿ #")&,ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ $+Bʿ +ʿ $>&+"?ʿ ʿ #1'! -ʿ #,ʿ ")&ʿ +$ (ʿ R1(! $-ʿ #%% ""&&ʿ +)$--ʿ $22# '"ʿ $'(ʿ ")$"ʿ &4&,?ʿ +1!)ʿ E "'&++ʿ *)#ʿ +)$--ʿ * -81--?ʿ +*&$,ʿ #,ʿ $88 ,%ʿ 8$-+&-?ʿ +)$--ʿ @&ʿ (&&%&(ʿ .1 -"?ʿ #8ʿ5&,>1,?6ʿ $'(ʿ+)$--ʿ @&ʿ 21' +)&(ʿ $!!#,('.-?

(OO 33DDʿ 026ʿ G /DH3ʿ 2# EJ Dʿ 3 ʿ 3/6ʿ 2#Fʿ A2H3N

ʿ '(ʿ @&ʿ "&'$!"&(ʿ)$"ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ R1Bʿ (! $-ʿ #%% ""&&ʿ "#ʿ (,&!"ʿ ")$"ʿ #,ʿ %#,&ʿ 8&. '&(ʿ ++1&ʿ #,ʿ ++1&+ʿ "#ʿ >.ʿ", &(ʿ ʿ $'?ʿ #1,"ʿ #8ʿ #%%#"ʿ $*6ʿ $'(ʿ ")&,ʿ $"ʿ $,6ʿ @&8#,&ʿ $ R1(.&ʿ #8ʿ ++ L&6ʿ #,ʿ $"ʿ ")&ʿ "" '.+ʿ 8#,ʿ ")&ʿ , $-ʿ #8ʿ ++1&+ʿ ʿ ʿ #,ʿ 8ʿ $'(ʿ &")&,ʿ @?ʿ $ 2&! $-ʿ #,ʿ #%%#"ʿ R1,?6ʿ ʿ -:&ʿ <$''&,ʿ $'(ʿ 8#,ʿ ")&ʿ +$%&ʿ 51,2#+&ʿ $+ʿ +ʿ '#*ʿ (#'&ʿ @?ʿ ")&ʿ .)ʿ #1,"ʿ #8ʿ)$'!&,?

026!ʿ I ʿ HD/^ 32# (2EDE!ʿ G /DH3ʿ *DC ^ E3 #Eʿ 3 ʿ OD /D2Gʿ 23ʿ 3"D

ʿ '(ʿ @&ʿ "&'$!"&(ʿ)$"ʿ "+)$--@&ʿ ʿ")&ʿ 3 +!,&"#"ʿ#8")&ʿ +$ (ʿ R1(! $-ʿ #%% ""&&ʿ "#ʿ (,&!" ")$"6ʿ #"ʿ ")&ʿ , $-ʿ #8ʿ $'?ʿ +1!)ʿ ++1&6ʿ ")&ʿ 3&2#+ "#'+ʿ $-,&$(?ʿ "$:&'ʿ #8$'?ʿ E "'&++ʿ *)#ʿ +)$--ʿ)$4&ʿ (&(6ʿ ,ʿ *)#ʿ +)$--ʿ @&ʿ '!$2$@-&ʿ "#ʿ .4&ʿ #,$-ʿ &+" %#'?6ʿ +)$--ʿ @&ʿ ,&!&4&(ʿ ʿ 4 (&'!&

B ʿ ʿ (2C

4 (&'!&ʿ ʿ $'(ʿ 81,")&,6ʿ ")$"ʿ +1!)ʿ 3&&(+6ʿ 4 (&'!&+6ʿ $1(ʿ E, " '.+ʿ ,$-ʿ#8ʿ
+)$--ʿ @&ʿ 2,#(1!&(6ʿ $'(ʿ ")$"ʿ +1!)ʿ $!"+ʿ +)$--ʿ @&ʿ $(% ""&(6ʿ $+ʿ "#ʿ ")&ʿ _
+$ (ʿ #%% ""&&ʿ +)$--ʿ +&&%ʿ 8"

ʿ '(ʿ @&ʿ "ʿ &'$!"&(ʿ)$"ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 7#,ʿ ")&ʿ +$ (ʿ 026ʿ 02]Dʿ
R1(! $-ʿ #%% ""&&ʿ "#ʿ '$:&ʿ +1!)ʿ $'(ʿ ")&ʿ + ʿ !
(% ++ #'ʿ #8ʿ 5&,+#'+6ʿ *)&")&,ʿ 5$," &+ʿ #,ʿ ʿ ʿ " ʿ &9$% '&(ʿ $+ʿ #8ʿ
E "'&++&+ʿ 12#'ʿ ")&ʿ , $-ʿ #8ʿ $'>ʿ +1!)ʿ ++1&+ʿ $+ʿ $+ʿ ʿ2Eʿ
.)ʿ)$'!&--#,ʿ #,ʿ ")&ʿ #1,"ʿ #8ʿ)$'!&,?ʿ)$+ʿ @&&'ʿ 1+&(ʿ "#ʿ %$:&ʿ 2/Dʿ 02GDʿ 06ʿ
,&+2&!" '.ʿ ")&ʿ (% ++ #'ʿ #8ʿ E "'&++&+ʿ 12#'ʿ ")&ʿ , $-ʿ #8ʿ ++1&+ʿ
(,&!"&(ʿ @?ʿ ")&ʿ #,(ʿ)$'!&--#,ʿ #,ʿ ")&ʿ #1,"ʿ #8ʿ)$'!&,?

ʿ '(ʿ @&ʿ "ʿ &'$!"&(ʿ)$"ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ 2#Gʿ 026ʿ
R1(! $-ʿ #%% ""&&ʿ "#ʿ (,&!"ʿ '&ʿ #, %#,&ʿ '&*ʿ 8 , $-ʿ #,ʿ '&*ʿ , $-+ ʿ , $-+ʿ #8
#8ʿ $'?ʿ ++1&6ʿ & ")&,ʿ .&'&,$--?ʿ #,ʿ 12#'ʿ !&,"$ 'ʿ 5# '"+ʿ #'-?ʿ $'(ʿ ")$"ʿ ++1&+6ʿ
'ʿ !$+&ʿ $'?ʿ E "'&++ʿ &9$% '&(ʿ $"ʿ $ʿ 8#,%&,ʿ , $-ʿ #8ʿ ")&ʿ +$%&ʿ ++1&ʿ
+)$--ʿ)$4&ʿ (&(6ʿ #,ʿ)$4&6ʿ "),#1.)ʿ @#(-?ʿ #,ʿ %&'"$-ʿ 3 +&$+&ʿ #,ʿ 'N
8 ,% "?6ʿ @&!#%&ʿ '!2@-&ʿ "#ʿ ,&2&$"ʿ) +ʿ &+" %#'?6ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ
8#,ʿ ")&ʿ +$ (ʿ #%% ""&&ʿ "#ʿ (,&!"ʿ ")$"ʿ 2$,#-ʿ 4 (&'!&ʿ #8ʿ ")&ʿ &+" N
%#'?ʿ #8ʿ +1!)ʿ E "'&++ʿ +)$--ʿ @&ʿ ,&!& 4&(

< ʿ '(ʿ *)&,&$+ʿ @?ʿ $'ʿ !"ʿ 2$++&(ʿ 'ʿ ")&ʿ) ,"&&'")ʿ &$,ʿ #8ʿ +ʿ C ZD/E!ʿ Hʿ
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2$++&(ʿ 'ʿ ")&ʿ ,+"ʿ &$,ʿ #8ʿ ")&ʿ & .'ʿ #8ʿ +ʿ 2,&+&'"ʿ $>&+"?6ʿ $'(ʿ 3 ʿ &2O #2^
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$--ʿ ")&ʿ 5#*&,+ʿ $'(ʿ 5,#4 + #'+ʿ !#'"$ '&(ʿ 'ʿ ")&ʿ *#ʿ -$+"B%&'" #'&(ʿ
!"+6ʿ #,ʿ & ")&,ʿ #8ʿ ")&%6ʿ +)$--ʿ &9"&'(ʿ "#ʿ $'(ʿ @&ʿ &9&,! +&(ʿ @?ʿ ")&ʿ +$ (ʿ
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(O O 33DD' 026' /D.D/' B 233D/E' 3 ' =D4 E3/2/' # E2 O D' B 2##D/' 2E' B 233D/E' 2/D' O6' (I/3' .' ("2#HD/6' /D.D//DG' 3 ' 2' B 2E3D/

< ' '(' @&' "81,")&,' &'$!"&(6')$"' "' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ""&&' "#' ,&8&,' $'?' $""&,+' "#' @&' &9$% '&(' $'(' ,&2#,"&(' #'' "#' ")&' $8#,&+$ (' &. +",$,6' #,' "#' +1!)' #")&,' 5&,+#'' #,' 5&,+#'+' $+' +)$--' @&' $22# '"&(' @?' +' $>&+"?' '' #1'! -' #,' @?' ")&' +$ (' R1(! $-' #%% ""&&6' '' ")&' +$%&' $''&,' $'(' 8#,' ")&' - :&' 51,2#+&+' $+' $""&,+' $,&' ,&8&,,&(' @?' ")&' #1," #8')$'!&,?' "#' $' $+"&,' #8' ")&' +$ (' #1," $'(' ")$"' 8#,' ")&' 51,2#+&+' #8' ") +' !" ")&' +$ (' &. +",$,' $'(' ")&' +$ (' 5&,+#'' #,' 5&,+#'+' +#' "#' @&' $22# '"&(' +)$--')$4&' ")&' +$%&' 5#*&,+' $'(' 1")#, "&+' $+' $,&' '#*' 2#++&++&(' @?' $' $+"&,' '')$2!&,?

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< ' '(' @&' "81,")&,' &'$!"&(6')$"' "' +)$--' @&' -$*81-' 8#,' +' $>&+"?6' 1'(&,' +' .'' $'1$-6' "#' $22# '' $'?' 5&,+#'' "#' @&' ")&' &. +",$,' #8' ")&' +$ (' 5, 4?' #1'! -6' $+' ,&.$,(+' ")&' 51,2#+&+' #8' ") +' !"6' $'(' "#B' (,&!" *)$"' 31" &+' +)$--' @&' 2&,8#,%&(' @?' ")&' +$ (' &. +",$,

33D#G2#HD' .' @ 3#DEEDE!' 2#G' +/ GIH^ 3 #' .' +2CD/E!' H !' 026' OD' H O^ CD77DG' O6' IOC D#2

' '(' @&' "81,")&,' &'$!"&(')$"' "' +)$--' @&' -$*81-' 8#,' ")&' 5,&+ (&'' 8#,' ")&' %&' @&' '.' #8' ")&' +$ (' 5, 4?' #1'! -' "#' ,&C1 ,&' ")&' ""&'($'!&' #8' $'?' E "'&++&+6' $'(' ")&' 5,#(1!" #'' #8' $'?' 3&&(+6' 4 (&'!&+6' #,' E, " '.+6' @?' E, " "#' @&' ++1&(' @?' +1!)' 5,&+ (&'' '' +1!)' $'(' ")&' +$%&' #,%6' #,' $+' '&$,-?' %$?' @&6' $+' ")$"' '' *) !)' $' E, " #8' 1@2#&'$ $(' "&+" 8 !$'(1%' #,' #8' 1@2#&'$ (!&+' "&J7%' +' '#*' ++1&(' @?' +' $>&+"?;+' #1," #8' D '.;+' &'!)' $"' / * -' $'(' ")$"' &4&,?' 5&,+#'' (+#@&? '.' $'?' +1!)' E, ' +#' "#' @&' ++1&(' @?' ")&' +$ (' 5,&+ (&'' +)$--' @&' !#'+ (&,&(' $+' '' #'"&%2"' #8' ")&' +$ (' R1(! $-' #%% ""&&6' $'(' +)$--' $-+#' @&' -$@-&' "#' +1!)' $'(' ")&' +$%&' 5&'$-" &+' $'(' #'+&C1&'!&+' $+' 8' +1!)' E, ')$(' ++1&(' #1" #8' ")&' +$ (' #1," #8' D '.;+' &'!)6' $'(' %$?' @&' +1&(' 8#,' +1!)' 5&'$-" &+' '' ")&' +$ (' #1,"

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' '(' @&' "81,")&,' &'$!"&(')$"' ")&' ,(&,' #,' 3&!,&&' #8' +' $>&+"?' '' #1'! -' #'' $'?' 22&$-' 8,#%' ")&' ,(&,6' &'"&'!&6' #, 3&!,&&' #8' $'?' #1," R1+" !&' '' ")&' .' ' #,' #8' $'?' #-#'?6' 5-$'"$" #'6' #,' #")&,' +' $>&+"?;+' 3#% '#'+' @,#$(+)$--' @&' !$,, &(' '"#' &888&!" '' +1!)' $''&,6' $'(' +1@>&!" "#' +1!)' % "$" #'+' $'(' #'B' R "#'+6' $+' +' $>&+"?' '' #1'! -' +)$--6' #'' ")&' &!#%%&'($" #'' #8' ")&' +$ (' R1(! $-' #%% ""&&6' (,&!"' $'(' +)$--' @&' -$*81-' 8#,' +' $>&+"?' '' #1'! -6' #'' +1!)' &!#%%&'($" #'6' @?' ,(&,6' "#' (,&!" ")$"' +1!)' #1," #8' R1+" !&' +)$--' !$,,?' ")&' +$%&' '"#' &888&!"' $!!#,(N '.-?6' $'(' ")&,&,12#'' +1!)' #1," #8' R1+" !&' +)$--')$4&' ")&' +$%&' 5#*&,+' #8' !$,,? '.' '"#' &888&!" $'(' &'8#,! '.' +1!)' ,(&,' #,' 3&!,&&' $+' $,&' 2#++&++&(' @?' #,' $,&')&,&@?' . 4&'' "#' +' $>&+"?' '' #1'! -
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")& #'+" "1" #'' #,' 31" &+ #8 ")& +$ (' 5, 4? #1'! -6 &9!&2" +# 8$,' !-
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1'(&,' ")& &$- #8 ")& +$ (' #1,"+6 "),#1.)' ")& V' "&(' #%2$'? #8 # CCD27E
&,!)$'"+ '' . ",$('.' "# ")& . "# ")& 88 !& #8 ./ 0'3"D IG
+ $>&+"?;+ +$ (' 5, 4? #1'! -6 @1" ")& 1 "#,+ '' ")& $1+&+ +# GD/ *DZ2##6
$22&$-&(')$4& '#" "$:&'' ")& '&!&++$,? &$+1,&+ "# @, '.' #'' ")& G2Z7I3
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$8#,&+$ (6)$" "+)$-- @& -$*81- 8#,' + $>&+"? '' #1'! - "# . 4& >D23 #4
+1!)' 3 ,&!" #'+ "# ")& +$ (' V' "&(' #%2$'? $'(' #")&,' 5&,+#'+
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+)$-- @& #8 ")& +$%& #,!& $'(' 88&!"6 $+ 8 ")& +$%&)$(' @&&''
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#1,"+ #8 1((&,' 3&*$''? ($*(1" #")&,' ")$'' 22&$-+ '' *) !)'
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)$4& @&&'' %$(& #'' $'? +1!)' 22&$- $+ -$+" $8#,&+$ (6 ")& +$%& +)$-- EIH7 C
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$'(- '.+ *) !) +)#1-(@& $" $'? %& (&2&'('. ' ")& +$ (#1,"
#8 9!)&C1&, $+ $ #1," #8 C1 "?6 $'(")$" 8 ")& +$ (#,( ) &8
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(1, '. ")& @+&'!& #8 ")& #,( ) &8 $,#'6 .,&$" '!#'4&' &'!& +
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#8 ")& +$ (#1,"] '(*)&,&$+ ")& #,( ) &8 $,#' %$? @? ") +
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) &8 $,#' @& '. 2,&4&'"&(8,#% + "" '. @? ")& 5&,8#,%$'!& #8
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")& 3&.,&& #8 ")& # 8 #8 ")& +$ (#1," 8#, ")& %& @& '. "#)&$,
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&,%6 #, +)$-- 2,&+ (& $" ")& "" '.+ $" + 5, 1+ #,
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Z ,IG4DE .3"D (I/3 . 2#]

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) ' +2/3' .' 3"D' # 3DG' ? #4G O! H' 3 ' OD' GDD O DG' OD6 #G' 3"D' D2E' Z 3" # 3"D' B D2# #4' .' 37 E' H3

< ' '(' @&' " 81,")&,' &'$!"&(6')$" '#' 5$," #8' ")&' V' "&(' D '.(#%' #8' ' (' $'(' ' '#,' ")&' +-$'(+' #8' ' '& ' ' $'(' $,F,6' '#,' $'?' +-$'(+' $(>$!&'" "#' $'?' #8' ")&%6' @& '.' 5$," #8' ")&' 3#% ' #'+' #8' +' $>&+"?6' +)$--' @&' (&&%&(' "#' @&' @&?#'(' ")&' &$+' * ") '' ")&' &$' '.' #8") +' !"6' ' #8' ")&' !"2$++&(' '' ")&' *&'"?B8 ,+" &$,' #8' ")&' & .# #8' D '.'& * ' ")&' ,+"6' '" "1-&(' ' ' ' * ' ' ' ' ' ' ' # ' $,' \

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+/ F E # # 3"D' (2ED' .' E I OED\ I D#3' +/ HDDG #4E' 242 #E3' 3"D' +D/E #E' #2 O DG' # 2' +7D2' # O23D O D#3

' '(' @&' " 81,")&,' &'$!"&(')$" '' $--' $+&+,' $' E) !)' $8"&,' +1!)' 5-&$' '' @$"&%&'" ")&' 5-$ '" 88' +)$--6' * ")#1")$4 '.' 2,#!&&(&(' "#' , $-' 12#" $'' ++1&' ")&,&#'6' !#%%&'!&' $'#")&,' !" #'' $.$ '+" ")&' 3&8&' ($'" #,' 3&8&' ($'"+' '' ")&' !" #'' '' *) !)' +1!)' 5-&$' '' @$"&%&'" +)$--')$4&' @&&'' 2-&$(&(6' $'(")&' 5&,+#'' #,' 5&,+#'+' '$%&(' '' +1!)' 5-&$' '' @$"&%&'" $+' ># '" #'",$!"#,+6' 8' " +)$--' $22&$,' @?' 5-&$('.+' '' +1!)' +1@+&C1&'" ! #'6' #,' #'' ")&' 4 (&'!&' $" ")&' , $-' ")&,&#8' ")$" $--' ")&' #, . '$-' 3&8&' ($'"+' $,&' - $@-&6' @1" ")$" '&' #,' %#,&' #8' ")&' 5&,+#'+' '$%&(' '' +1!)' 5-&$' '' @$"&%&'" #,' M$'?' +1@+&C1&'" 5-&$' '' @$"&%&'" $,&' '#" - $@-&' $+' $' !#'",$!"' '.' 5$,"?' #,' 5$," &+6' ")&' 5-$ '" 88' +)$--' '&4&,")&-&++' @&' &'" "-&(' "#' R1(.N %&'"6' #,' "#' $ <&,(!" $'(' R1(.%&'"6' $+' ")&' $+&' %$?' @&6' $.$ '+" ")&' #")&,' 3&8&' ($'" #,' 3&8&' ($'"+' *)#' +)$--' $22&$,' "#' @&' - $@-&' $'(' &4&,?' 3&8&' ($'" *)#' +' '#" +#' - $@-&' +)$--')$4&' R1(.1$&$"6' $'(' +)$--6' @&' &'" "-&(' "#') +' #+"+' $+' $.$ '+" ")&' 5-$ '" 88' *)#' +)$--' @&' $--#*&(' ")&' +$%&' $+' #+"+' '' ")&' $1+&' $.$ '+" ")&' 3&8&' ($'" #,' 3&8&' ($'"+' *)#' +)$--')$4&' +#' 2-&$(&(' '' @$"&%&'" ")&' #'># '(&,' #8' 1!)' 5&,+#'' 2,#4 (&(' ")$" $'?' +1!)' 3&8&' ($'" *)#' +)$--')$4&' +#' 2-&$(&(' '' @$"&%&'" +)$--' @&' $" - @&,"?' #'' ")&' , $-' $((1!&' 4 B' (&'!&' #8")&' $@ - "?' #8' ")&' 3&8&' ($'"+' '$%&(' @?') %6' '' +1!)' 5-&$' '' @$"&%&'"

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B E# OD/ʻ # 3ʻ 3 ʻ ODʻ C7D2GDGʻ # O23D O D#3

ʻ ʻ '(ʻ @&ʻ "ʻ 81,")&,ʻ &'$!"&(ʻ)$"ʻ 'ʻ $--ʻ !"#'+ʻ 12#'ʻ --+ʻ #8ʻ 9!)$'.&ʻ #,ʻ 5,#% ++#,?ʻ #"&+6ʻ #,ʻ #")&,ʻ *, ""&'ʻ '+",1%&'"+6ʻ $'?ʻ #8ʻ ")&ʻ 5$,"&+ʻ "#ʻ *) !)ʻ $,&ʻ (&+ .'$"&(ʻ @?ʻ ")&ʻ ' "$-ʻ &""&,ʻ #,ʻ &""&,+ʻ #,ʻ +#%&ʻ #'",$!"#'ʻ #8ʻ ")&ʻ), +"$'ʻ #,ʻ 8 ,+"ʻ $%&ʻ #,ʻ $%&+6ʻ "ʻ +)$--ʻ @&ʻ +188 ! &'"ʻ 'ʻ &4&,?ʻ 88 ($4"ʻ "#ʻ)#-(ʻ "#ʻ $ -6ʻ $'(ʻ 'ʻ ")&ʻ 5,#!&++ʻ #,ʻ 3&!-$,$"#'6ʻ "#ʻ (&+ .'$"&ʻ +1!)ʻ 5&,+#'+ʻ @?ʻ ")&ʻ +$%&ʻ ' "$-ʻ &""&,ʻ #,ʻ &""&,+ʻ #,ʻ #'",$!"#'ʻ #8ʻ ")&ʻ), +"$'ʻ #,ʻ 8 ,+"ʻ $%&ʻ #,ʻ $%&+6ʻ '+"&$(ʻ #8ʻ +"$" '.ʻ ")&ʻ), +"$'ʻ #,ʻ 8 ,+"ʻ $%&ʻ #,ʻ $%&+ʻ 'ʻ 81--

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+ ZD/ʻ 3 ʻ 3"Dʻ , IG4DEʻ 3 ʻ 3"D GO EE #ʻ .ʻ Z/ 33D#ʻ * HI O D#3E!ʻ

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")&,&8#,& &'$!8#(6)$"$-- E, "+ ++1&(1'(&,'$'(@?4 ,"1& ")& "$"1"& 2$++&(")& &++#" #8 5$,- $%&'")&-(" ")" .)")'$'('")' &$,+ #8 ")& & I " #8 D '.' / *")&) ,(6 '" "1-&(8 +)$--6 1'-&++ ")& #1)" *)&,& +1!)' !"#" + 2&'('.6 #,'$ R1(.& #8 #'& 28 ")& +$ (12&, #,' #1,"+6 +)$-- #")&, * +& #,(&,6 (,&!" ")&)&, 88 #8 ")& #1'"? *)&,& ")& !"#" +)$-- @& @,#1.)" "# +1%%#" $ R1,? "# $22&$,'@&8#,& +1!)')&, 886 '+"&$(#8 ")& R1+" !&+ #,'R1+" !& #8 ++ L& #,' +'5, 1+ #8 ")$" #1'"?6 "# 'C1 ,& #8 ")& ,1")' #8 ")& ,&$!)&+ +1..&+"&(6 $'($++&++ ")& 3$%$.&+ ")$" ")& 5-$ '" 88 +)$--)$4& +1+N "$ '&(")&,&@?6 $'(+)$-- !#%%$'(")& +$ ( )&, 88 "# 2$:& &"1,' ")&,&#8 "# ")& #1," 8,#%6 *)&'!& ")& +$%&& +)$-- ++1& $" $ 3$? !&,"$ '6 " &,%6 #,' " <$!$" #'6 " +1!)' E, " 8# @& %&'" #1 &(' $'(+1!)' 5,#!&&('.+ +)$-- @&)$($8"&,' ")& &"1," #8 +1!)' E, " $+ $,& " ")& +$ ("$"1"& " ")$" &)$-8 %&'" #'&(6 " - :& $''&,' $+ 8 +1!)' E, ")$(@&&" &9&!1"&(@&8#,& $ R1+" !& #8 ++ L& #,' +'5, 1+

+ ZD/'3 ' G /DH3' EEIDE' 5 #DG #'HD/^ 32 # H3 #E' 3 'OD'3/DG' OD. /D'3"D' "D/ ..' /'2#6' ,IG4D

< ' '(@& " 81,")&,'&'$!"&(6)$" "$'? !"#" (&2&'('.' "$'? #8 ")& +$ (12&, #,' #1,"+ 8#,'$'? 3&@" #,' 3&%$'(" *) !-' ")& 1%6 +#1.)" "# @& ,&!#4&,&(6 $'(&'(#,+&(#" ")& E, " #8 1%N %#'+6 +)$-- '#" &9!&&(*&'"? 5#1'(+6 " +)$-- @& -$*81- 8#,' ")& #1," " *) !)'+1!)' 1 " +)$-- @& (&2&'('.6 #,'$'? R1(.& #8 $'? #8 ")& +$ (#1,"+6 8 +1!)' #1," #,' R1(.& +)$-- @& +$" +8 &(")$" ")& ,$- * -- '#" '4#-4& $'? (88 !1-" T1&+" #" #8 5$!" #,' $*6 $'(+1!)' #1,"#,'R1(.& +)$--") ':'8 " +# "# (#6 "# #,(&,'$'((,&!" ")$" ")& ++1& #,' ++1&+ ># '&(+)$-- @& ", &(@&8#,& ")&')&, 88 #8 ")& #1'"? *)&,& ")& !"#" +@,#1.)"6 #,'$'? R1(7& #8 $'? #1," #8 &!#,(' 8#,' ")& &!#4&,? #8 3&@" " +1!)' #1'"?6 $'(8#,' ")$" 51,N 2#+& $ E, " +)$-- ++1& (,&!"&("# +1!)')&, 886 !#%%$'('.') %"# ",? +1!)' ++1& #,' ++1&+6 @? $ R1,? "# @& EIOO #DG @?) %6 $'("# ,&"1,' +1!)' E, " * ")' ")& '('.' #8 ")& R1,?")&,&#" '(#,+&(6 $" $ 3$? !&,"$ '6 " &,%6 #,' " <$!$" #'6 "# @& '$%&(" +1!)' E, " $'(")&,&12#" +1!)')&, 88 #,'R1(.& +) (-+1%%#" $ R1,?6 $""(+)$-- 2,#!&&("# ",? +1!)' ++1& #,' ++1&+

C #'3"D' =D3I/#' .'2' @/3' .' #^ \I /6' /'2' /2' .' EEIDE' ,IG4^ OD#3'3 'OD' ' E4#DG' I#^ 7DEE' H

< ' '(@& " 81,")&,'&'$!"&( )$" $" ")& &"1,' #8 $'? +1!)' E, " #8 'C1 ,?6 #,' E, " 8#,' ")& ,$- #8 +1!)' ++1& #,' ++1&+ $+ $8#,&+$ (#+"+ +)$-- @& "$9&(R1(.%&'" +7'&(6 $'(9&!1" #" ++1&(8#,")* ")6 1'-&++ ")&)&, 88 #,') + 3&21"? @&8#,& *)#%6 +1!)' E, " #8 'C1 ,? %$? @& &9&!1"&(6 #,'+1!)')&, 886 3&21"?6 #,'>1(.& @&8#,& *)#%6 +1!)' ,$- +)$-- @&)$(S +)$-- !&," 8? 1'(&,' @ + $'(12#" +1!)' E, " ")$" R1(.%&'" #1.)" '#" "# @& + .'&(1" - ")& 3&8&'($" +)$--)$4&)$($" 22#,"1' '? "# $22-? "# ")& #1,"6 8#,' $ '&* 'CC ,? #,' ,$-6 #,' $ R1(.& #8 $'? #8 ")& + (#1,"+ +)$--") ':'8 " "# #,(&,' ")$" R1(.%&'" #,' 9&!1" #" +)$-- @& +"$?&(" --'$ 37BB "# @& '$%&(" +1!)' ,(&,' $'(")& <&,(!" !88+1!)' R1,? #" ")& ,$- #8 +1!)' ++1& #,' ++1&+ +)$-- @& $+ 4$- ($'(#8 ")& - :& #,!& $+ $ <&,(!" #8 $ R1,? $" +'5, 1+ $'(")&)&, 88 #,') + 3&21"?6 #,'R1(.&6 2,&+ ('.'$" ")& ,$- #8 +1!)' ++1& #,' ++1&+6 +)$--)$4& ")& - :& 5#*&,+ * ")' ,&+2&!" "# %&1(%&'" #" +1!)' ,$- $+ $,&)&,& 'B$8"&,'. 4&" "# R1(.&+ $" +'5, +

"D/ ..' 2E'3 ' EIH" EEIDE!' 3 ' "2FD'3"D' 7]D' + ZD/E' 2E' ,IG4DE' 23') E'+/ IE

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'ʹ")&ʹ "$"1"&ʹ %$(&ʹ $'(ʹ 2$++&(ʹ 'ʹ")&ʹ ,+"6ʹ &$,ʹ #8ʹ "P ʹ & .'ʹ #8ʹ E Q ʹ ! ʹ ʹ K
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ʹ E&+"% '+"&,6ʹ ʹ ʹ ʹ ʹ ʹ ** ʹ > ʹ ʹ # ʹ EEIDEʹ
> ʹ ʹ $'!$+"&,6ʹ ʹ ʹ * ʹ ʹ $ʹ ʹ ʹ & *
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+$%&ʹ $,&ʹ $22- !$@-&ʹ ")&,&"#6ʹ @&ʹ &9"&'(&(ʹ $'(ʹ $22- &(ʹ "#ʹ R1(.%&'"+ʹ
$'(ʹ 9&!1" #'+ʹ 12#'ʹ +1!)ʹ E, "+ʹ #8ʹ 'C1 ,?ʹ $'(ʹ E, "+ʹ 8#,ʹ ")&ʹ , $-+ʹ
#8ʹ ++1&+6ʹ 'ʹ - :&ʹ $''&,ʹ $+ʹ 8ʹ ")&ʹ +$%&ʹ *&,&ʹ &92,&++-?ʹ ,&B&'$!"&(ʹ
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3&21"?6ʹ *)#ʹ +)$--ʹ @&ʹ ,&+ (&'" #,ʹ)$4&ʹ $"ʹ 88 !&ʹ * ") 'ʹ '&ʹ -&ʹ #G #!ʹ
8,#%ʹ ")&ʹ ʹ5 * ʹ) ʹ8#,ʹ ")&ʹ &!& 2" #8ʹ E, "+6ʹ .,$'" '.ʹ E$,N
,$'"+ʹ ")&,&#'6ʹ %$: '.ʹ &"1,'+ʹ ")&,&"#6ʹ $'(ʹ $!!&2" '.ʹ #8ʹ $--ʹ 1-&+
$'(ʹ ,(&,+ʹ "#ʹ @&ʹ %$(&ʹ #'ʹ #,ʹ "#1!) '.ʹ ")&ʹ 9&!1" #'ʹ #8ʹ $'?ʹ 5,#!&++ʹ
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ʹ '(ʹ @&ʹ "81,")&,ʹ &'$!"&(6ʹ)$" "ʹ +)$--ʹ @&ʹ -$*81-ʹ 8#,ʹ ")&ʹ *D.D#G2#3ʹ 3ʹ
3&8&'($'" 'ʹ $--75&,+#'$-ʹ !"#'+66ʹ X&9!&2" !"#'+ʹ 8#,ʹ ++$1-ʹ $'(ʹ ODʹ277 ZDGʹ3ʹ
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5,#+&!1" #'6ʹ , % '$-ʹ #'4&,+$" #'ʹ #,ʹ (&@$1!) '.ʹ #8ʹ ")&ʹ 5-$ '" 88;+ʹ !&,"$ '7BAʹ
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*)&,&ʹ +1!)ʹ !"#'ʹ +ʹ 2&'('.6ʹ #,ʹ $ʹ R1(.&ʹ #8ʹ $'?ʹ #8ʹ")&ʹ +$ (ʹ 12&, #,ʹ ,IG4DaEʹ '/ʹ
#1,"+6ʹ "#ʹ 2$?ʹ '"#ʹ #1,"ʹ $ʹ 1%ʹ #8ʹ #'&?ʹ @?ʹ *$?ʹ #8ʹ #%2&'+$" #'
#,ʹ %&'(+6ʹ 'ʹ +1!)ʹ $''&,ʹ $'(ʹ 1'(&,ʹ +1!)ʹ &.1-$" #'+ʹ $+ʹ "#ʹ ")&ʹ
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+1!)ʹ .)" #,ʹ %#,&ʹ #8ʹ ")&%ʹ $+ʹ $8#,&+$ (6ʹ +)$--6ʹ @?ʹ $'?ʹ 1-&+ʹ #,ʹ
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*) !)ʹ +ʹ @?ʹ $*ʹ -#!$-6ʹ ")&ʹ #1," 'ʹ *) !)ʹ +1!)ʹ !"#'ʹ +)$--ʹ @&ʹ
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22- !$" #'ʹ #8ʹ & ")&,ʹ 5$,"?6ʹ #,(&,ʹ ")&ʹ ++1&ʹ "#ʹ @&ʹ ", &(6ʹ #,ʹ E, "#8ʹ
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*) !)ʹ ")&ʹ <&'1&ʹ +ʹ -$ (ʹ $'(ʹ 8#,ʹ ")$" 51,2#+&ʹ $'?ʹ +1!)ʹ #1," #,ʹ;
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, $-ʹ %$?ʹ @&ʹ %#,&ʹ !#'4&' &'"-?ʹ)$(6ʹ #,ʹ E, "#8ʹ 'C1 ,?ʹ &9&!1"&(6ʹ 'ʹ
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ʹ '(ʹ *)&,&$+ʹ .,&$" 92&'!&ʹ +ʹ #8"&'ʹ '!1,,&(6ʹ $'(ʹ 3&-$?ʹ 77 Z #4
#,ʹ $ -1,&ʹ #8ʹR1+" !&ʹ "$:&+ʹ 2-$!&6ʹ $" , $-+6ʹ @?ʹ ,&$+#'ʹ #8ʹ <$!$'! &+ʹ $+ʹ OD#GOD#3Eʹ
"#ʹ +#%&ʹ 5$," !1-$,ʹ #,ʹ 5$," !1-$,+ʹ @&"*&&'ʹ ")&ʹ 5,##8ʹ $'(ʹ ")&ʹ &!#,(ʹ >7.7..7?>
#,ʹ +&"" '.ʹ 8#,")6ʹ #'ʹ ")&ʹ &!#,(ʹ #,ʹ 3#!1%&'" #'ʹ *) !)ʹ ")&ʹ , $-ʹ +ʹ HD/32 #
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+B+"$"&%&'" #8ˢ *) !)ˢ ")&ˢ #22#+ "&ˢ 5$,"?ˢ !$''#")$4&ˢ @&&'ˢ 2,&N
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5, '" 2,#(1!&(ˢ 'ˢ 4 (&'!&ˢ $'(ˢ")&ˢ &!#,(ˢ] '(ˢ *)&,&$+ˢ "ˢ +ˢ &9Bˢ
2&(&'""#sˢ $--#*ˢ +1!)ˢ %&'(%&'"+ˢ $+ˢ)&,& 'B$8"&,ˢ %&'" #'&(ˢ "#ˢ @&ˢ
%$(&ˢ #'ˢ ")&ˢ , $-ˢ #8ˢ")&ˢ $1+&ˢ @&ˢ "ˢ")&,&8#,&ˢ &'$!"&(ˢ)$"ˢ "ˢ+)$--ˢ
@&ˢ -$*81-ˢ 8#,ˢ $'?ˢ #1,"#8ˢ &!#,(6ˢ)#-('.ˢ 5-&$ˢ 'ˢ 4 -ˢ !"#'+6ˢ $'(ˢ
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$'?ˢ '8#,%$"#'ˢ 'ˢ")&ˢ $"1,&ˢ #8ˢ $ T1#ˢ *$,,$'"#6ˢ #,ˢ 5,#!&&('.+ˢ #'ˢ
$ˢ $'($%1+6ˢ *)&'ˢ $'?ˢ <$, $'!&ˢ +)$--ˢ $22,&$,ˢ @&"*&&'ˢ ")&ˢ 5,2#8ˢ $'(ˢ
")&ˢ &! "$-ˢ #,ˢ +&"" '.ˢ 8#,")6ˢ #'ˢ")&ˢ &!#,(6ˢ E , "6ˢ #,ˢ 3#!1%&'"#'ˢ *) !)ˢ
")&ˢ , $-ˢ +ˢ 2,#!&&('.6ˢ #8ˢ $'?ˢ #'",$!"6ˢ 1+"#%6ˢ 5,&+!, 2" #'6ˢ $%&6ˢ
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+1!)ˢ #1,"#,ˢ R1(.&ˢ '#" %$"&, $-ˢ "#ˢ ("&ˢ &, "+ˢ #8ˢ ")&ˢ $+&6ˢ $'(ˢ @?ˢ
*) !)ˢ ")&ˢ #22#+ "&ˢ 5$,"?ˢ !$''#")$4&ˢ @&&'ˢ 2,&>1(!&(ˢ 'ˢ ")&ˢ #'(1!"
#8ˢ) +ˢ !"#'6ˢ 5,#+&!1"#'6ˢ #,ˢ 3&8&'!&6ˢ "#ˢ @&ˢ 8#,") * ")ˢ $%&'(&(ˢ @?ˢ
+#%&ˢ 88 !&,ˢ #8ˢ")&ˢ #1,"#,ˢ#")&,* +&6ˢ @#")ˢ 'ˢ")&ˢ 5$,"#8ˢ")&ˢ 5-&$(N
'.+ˢ *)&,&ˢ +1!)ˢ <$, $'!&ˢ #!!1,+6ˢ $'(ˢ %ˢ &4&,?ˢ &")&,ˢ 5$,"#8ˢ ")&ˢ
5-&$('.+ˢ *) !)ˢ "%$?ˢ @&!#%&ˢ '&!&++$,?ˢ "#ˢ $%&'(6ˢ #'ˢ +1!)ˢ &,%+ˢ
$+ˢ "#ˢ 5$?%&'"#8ˢ #+"+ˢ "#ˢ ,&ˢ #")&,ˢ 5$,"?6ˢ #,ˢ 2#+"2#' '.ˢ")&ˢ , $-ˢ "#ˢ
@&ˢ)$(ˢ @&&#,&ˢ ")&ˢ +$%&ˢ #,ˢ $'#")&,ˢ R1,?6ˢ #,ˢ @#")ˢ 5$?%&'"#8ˢ #+"+ˢ
$'(ˢ 5#+"2#'&%&'"6ˢ $+ˢ +1!)ˢ #1,"#,ˢ R1(.&ˢ +)$--ˢ ") ':ˢ ,&$+#'$@-&ˢ ˢ
$'(ˢ 'ˢ !$+&ˢ +1!)ˢ <$, $'!&ˢ +)$--ˢ @&ˢ ""+#%&ˢ 5$," !1-$,ˢ #,ˢ 5$," !1-$,+ˢ
'ˢ ")&ˢ R1(.%&'"#8ˢ +1!)ˢ #1,"#,ˢ R1(.&ˢ '#" %$"&, $-ˢ "#ˢ ")&ˢ &, "+ˢ
#8ˢ ")&ˢ $+&6ˢ @1"ˢ +1!)ˢ $+ˢ ")$"ˢ ")&ˢ #22#+ "&ˢ 5$,"?ˢ %$?ˢ)$4&ˢ @&&'ˢ
2,&>1(!&(ˢ ")&,&@?ˢ 'ˢ")&ˢ #'(1!"#8ˢ) +ˢ !"#'6ˢ 5,#+&!1"#'6ˢ #,ˢ
3&8&'!&6ˢ ")&'ˢ +1!)ˢ #1,"#,ˢ R1(.&ˢ +)$--ˢ)$4&ˢ 5#*&,ˢ #ˢ !$1+&ˢ ")&ˢ
+$%&ˢ "#ˢ @&ˢ $%&'(&(ˢ 12#'ˢ 5$?%&'"#8ˢ #+"+ˢ #")&,ˢ "#ˢ ")&ˢ #")&,ˢ 5$,"?6ˢ $'(ˢ
* ")(,$* '.ˢ ")&ˢ &!#,(ˢ #,ˢ 2#+"2#' '.ˢ")&ˢ , $-ˢ $+ˢ $8#,&+$ (6ˢ $+ˢ +1!)ˢ
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%&'"ˢ ")&ˢ , $-ˢ +)$--ˢ 2,#!&&(6ˢ !$+&ˢ ")&ˢ +$%&ˢ +)$--ˢ @&ˢ 2,#!&&(&(ˢ
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$@ - "?ˢ #8ˢ E "'&++&+ˢ "#ˢ @&ˢ '(!"&(ˢ 8#,ˢ 5&,>1,?6ˢ $'(ˢ#")&,* +&6ˢ $+ˢ 8ˢ
'#ˢ +1!)ˢ <$, $'!&ˢ)$(ˢ $22&%;&(ˢ $'(ˢ 'ˢ $+&ˢ +1!)ˢ , $-ˢ +)$--ˢ @ ˢ)$(ˢ
$"ˢ +ˢ 5, 1+ˢ #,ˢ @?ˢ 4 ,"1&ˢ #8ˢ +1!)ˢ E , "ˢ $+ˢ $8#,&+$ (6ˢ ")&ˢ ,(&,ˢ 8#,ˢ
")&ˢ %&'(%&'"ˢ +)$--ˢ @&ˢ '(#,+&(ˢ #'ˢ")&ˢ #+"&$ˢ #,ˢ")&ˢ E , "6ˢ $+ˢ")&ˢ
$+&ˢ %$?ˢ @&6ˢ $'(ˢ ,&"1, '&(ˢ $'(ˢ * ")ˢ")&ˢ &!#,(ˢ #,ˢ E , "6ˢ $'(ˢ
")&,&12#'ˢ +1!)ˢ 5$2&,+6ˢ #--+6ˢ $'(ˢ #")&,ˢ &!#,(+ˢ #8ˢ")&ˢ #1,"ˢ 8,#%ˢ
*) !)ˢ+1!)ˢ &!#,(ˢ E , "ˢ ++1&(6ˢ $+ˢ "%$?ˢ @&ˢ '&!&++$,?ˢ "#ˢ $%&'(6ˢ
+)$--ˢ @&ˢ $%&'(&(ˢ $!!#,('.-?ˢ $'(ˢ 'ˢ!$+&ˢ ")&ˢ , $-ˢ +)$--ˢ @&ˢ)$(ˢ 'ˢ
$'?ˢ #1,"#8ˢ &!#,(6ˢ")&'ˢ ")&ˢ ,(&,ˢ8#"ˢ %&'(%&'"+)$--ˢ @&ˢ !'"%&(ˢ
#'ˢ ")&ˢ #--ˢ #,ˢ ")&,&#8ˢ 3#!1%&'"12#'ˢ *) !)ˢ ")&ˢ , $-ˢ +)$--ˢ @&ˢ)$(ˢ
2,#4 (&(ˢ")$"ˢ "+)$--ˢ @&ˢ -$*81-ˢ 8#,ˢ $'?ˢ 5$,"?ˢ *)#ˢ +ˢ (++$"+8 &(ˢ * ")ˢ
")&ˢ 3&! +#'ˢ #8ˢ +1!)ˢ R1(.&ˢ $"ˢ +ˢ ,8 1+ˢ)&, 88ˢ #,ˢ #")&,ˢ 88 !&,6ˢ
,&+2&!" '.ˢ) +ˢ --#*$'!&ˢ #8ˢ $'?ˢ+1!)ˢ %&'(%&'"6ˢ "#ˢ $22-?ˢ "#ˢ ")&ˢ
#1,"8,#%ˢ*) !)ˢ+1!)ˢ &!#,(ˢ E , "ˢ ++1&(ˢ8#,ˢ $ˢ '&*ˢ , $-ˢ 12#'ˢ
")$"ˢ H,#1'(6ˢ $'(ˢ 'ˢ !$+&ˢ $'?ˢ+1!)ˢ #1,"ˢ+)$--ˢ ") ':ˢ +1!)ˢ %&'(N
%&'"ˢ %2,#2&,6ˢ $ˢ '&*ˢ , $-ˢ +)$--ˢ @&ˢ .,$'"&(ˢ $!!#,('.-?7ˢ #'ˢ +1!)ˢ
&,%+ˢ $+ˢ ")&ˢ #1,"ˢB+)$--ˢ ") ':ˢ 8"6ˢ #,ˢ ")&ˢ #1,"ˢ +)$--ˢ %$:&ˢ +1!)ˢ
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< ' '(' @&' "' 8%'")&,'&'$!"&(')$"'")&' +$ (' #1,"' #,' R1(.&' + ZD/' . /'3"D'
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'+"&$(' #8' !$1+ ' . ' ")&' &!#,(' #,' 3#!1%&'' "#' @&' $%&'(&(' $+' $8#,&B'
+$ (6' (,&!"' ")&' R1,?' "#' 8 '(' ")&' $!"' #,' $!"+' $!!#,(' . ' "#' ")&' 4 B' 3 ' OD' . I#G'
(&'!&6' $'(' ")&,&12#'' +1!)' '(' . ' +)$--' @&' +"$"&(' #'' +1!)6' &!#,(' #,' ECDH 2776'
3#!1%&'"6' $'(6' '#"* ")+"$'(' . ' ")&' '(' . ' #'' ")&' ++1&' ># '&(6' ")&'
+$ (' #1,"' #,' ")&' #1,"' 8,#%' *) !)' ")&' &!#,(')$+' ++1&(' +)$--6' 8'
")&?' +)$--' ") ' :' ")&' +$ (' <$, $'!&' %%$"&, $-' "#' ")&' &, "+' #8' ")&'
$+&6' $'(' ")&' +B+"$"&%&'' +1!)' $+' !#1-(' '#"')$4&' 2,&>1(!&(' ")&'
#22#+ "&' 5$,"?' '' ")&' #'(1!"' #8' ")&' !" #'' #,' 3&8&'!&6' . 4&' R1(.N
%&'' $!!#,(' . ' "#' ")&' 4&,?' .)"' $'(' R1+" !&' #8' ")&' $+&

< ' '(' @&' " 81,")&,' &'$!"&(6')$"' " +)$--' @&' -$*81-' 8#,' ")&' + ZD/' 3 '
5$," &+' '' $'?' !" #'' #,' '8#,%$" #'6' $8"&,' ++1&' ># '&(6' @?' #'+&'' E323D' 2' ECDH 27'
$'(' @?' ,(&,' #8' $'?' #8' ")&' R1(.&+' #8' ")&' +$ (' 12&, #,' #1,"+6' "#' 7,# &7P'AA7'#
+"$"&' ")&' R$!"+' #8' ")&' $+&6' '' ")&' #,%' #8' $' +2&! $-' $+&6' 8#,' ")&' ,$-'
2 ' #'' #8' ")&' #1,"6' $'(' "#' $.,&&' ")$"' $' R1(.%&'' +)$--' @&' &'"&,&(
8#,' ")&' 5-$ '' 8' #,' 3&8&'($'"6' @?' #'8&++ #'' #,' #8' #--&B' 2,#+&C1 6'
%%&($"&-?' $8"&,' ")&' 3&! + #'' #8' ")&' $+&6' #,' #")&, * +&' $+' ")&' #1,"
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< ' '(' '' #,(&,' "#' ,&'(&,' ")&' &>&!" #'' #8' E "'&++&+' #'' ")&' @ 3#DEEDE' #'
H,#1'(' #8' '"&,&+' -&++' 8,&C1&'"6' @&' " 81,")&,' &'$!"&(')$"' 8' $'?' 3D/DE3DG'
E "'&++' +)$--' @&' #@>&!"&(' "#' $+' '!#%2&"&'' #'' ")&' H,#1'(' ")$"' ")&' $!!#1' #8
<&,(!"' #,' R1(.%&'' '' ")&' !" #'' #'' *) !)' " +)$--' @&' 2,#2#+&(' "#' 3"D' D/G H3' 3 '
&9$% '&') %' *#1-(' @&' $(% ++ @-&' '' 4 (&'!&' 8#,' #,' $.$ '+"') %' OD2GO EE O7D'
+1!)' E "'&++' +)$--' '&4&,")&-&++' @&' &9$% '&(6' @1"' '' ")$"' $+&' $
<&,(!"' #,' R1(.%&'' '' ")$"' !" #'' '' 8$4#1,' #8' ")&' 5$,"?' #'' *)#+&'
&)$-8')&' +)$--')$4&' @&&'' &9$% '&(' +)$--' '#"' @&' $(% ++ @-&' '' 4 N
(&'!&' 8#,') %' #,' $'?' #'&' !-$ % ' . ' 1'(&,') %6' '#,' +)$--' $' <&,(!"'
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< ' '(' @&' "81,")&,' &'$!"&(6')$"'")&' $%&' #8' &4&,?' E "'&++' * /DH3 #' 3
#@>&!"&(' "#' $+' '!#%2&"&'' #'' ")&' H,#1'(' ")$"' +1!)' <&,(!"' #,' '#G' /ED' 3"D'
R1(.%&'' *#1-(' @&' $(% ++ @-&' '' 4 (&'!&' 8#,' #,' $.$ '+"') %' +)$--')2 0D' .' 3"D'
$"' ")&' ,$-' @&' '(#,+&(' #'' ")&' &!#,(' #,' 3#!1%&'' #'' *) !)' ")&' @ 3#DEE' #'
,$-' +)$--' @&')$(6' "#.&")&,' * ")' ")&' $%&' #8' ")&' 5$,"?' #'' *)#+&' 3"D' =DH /G
&)$-8')&' *$+' &9$% '&(6' @?' +#%&' 88 !&,' #8' ")&' #1,"6' $"' ")&' &C1&+"'
#8' &")&,' 5$,"?6' $'(' +)$--' @&' $8"&, * $,(+' &'"&,&(' #'' ")&' &!#,(' #8' ")&'
R1(.%&''' $'(' +1!)' '(#,+&%&'' #,' '",?' +)$--' @&' +188 ! &'' 4 (&'!&'
")$"' +1!)' E "'&++' *$+' &9$% '&(' '' $'?' +1@+&C1&'' 5,#!&&(' . ' ''
*) !)' ")&' <&,(!"' #,' R1(.%&'' +)$--' @&' #8 &,&(' '' 4 (&'!&

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+ ZD/E' # Z' FDE3DG' #' 3"D' P ' = 2G' (0 '
! 0 EE C#D/E!' 2#G' . /' G EH"2/4 #4' 3"D' 72E3 0 D#^
3 #DG' ! (0 0 EE #D/E' ./ 0' 3"D' .I3I/D' =DC2 /E'
2#G' B 2 #3D#2#HD' .' 3"D ' = 2GE!' >2 0 I/E!' 2#G'
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E ' $'' !"' *$+' 2$++&(' '' ")&' #1,")' &$,'#8' ")&'
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'' ")&' 9")' &$,'#8'")&' &.'' #8' +' +$ ('-$"&' $>&+"?' D '.' '
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2$++&(' '' '')&' '' '')' &$,' #8' '')&' & . '' #8' +' +$ (' -$"&' $>&+"?' D ' .'
' ' U TV' ' '')&' #1,'')6' '' ''1-&(' ' ' ' ' ' '
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- 4&,2##-] '(' *)&,&$+' $'' !'' *$+' 2$++&(' '' 7)&' ,+'' &$,' #8' '')&'
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$'(' 1'')#, '' &+' !#''$ '&(' '' '')&' +$ (' +&47$-' !''+')&,& 'B@&8# &' 2$&'B'
'' #'&(' -$,.&' 1%+' #8' #'&?')$4&' @&&'' ++1&(' $'(' $22- &(' '' '')&'
@1 -(' .' $'(' !#%2-&'' ' .' '')&' , (.&+' #4&,' '')&' ' $'('')&'
4&,' $ ' '' ,&2$, ' .' $'(' ,'' 2,#4 ' .' '')&' $,@#1,+' #8') $ '
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#$(+6' $'(' '' &9&!1'' ' .' '')&' &4&,$-' #'')&,' E#,:+' '' '')#+&' !''+'
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& . '' #8' +' +$ (' -$"&' $>&+"?' ' $'(' %$'?' %2#,''$''' %2,#<&%%8''''+'
)$4&' @&&'' &88&!''&(' $'(' $,&' '#*' !$,,?)7' #'' #'' '')&' +$ (' #$(+6'
$'(' 81,'')&,' '''&'(&(' %2,#4& 1&'''+' #'' '')&' +$ (' &4&,$-' #$(+' +'' '
,&%$ '' ''#' @&' !$,, &(' '''#' &88&!'']' '(' E)&8&$+' >''=' +' #8' . ,&$'' 21@- !'
%2#,''$'!&6' ''#*$,(+' '')&' %$ '''$ ' ' .' $'('8$! - ''$'' ' .' '')&' '''&,!#1,+&'
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2,#2&,' $'(' &88 ! &''' ''$''&' #8' &2$,])(' *)&,&$+' '')&' +$ (' +&4&,$-'
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#%% ++ #'&,+' $22# '''&(' @?' '')&' +$ (' ,&! ''&(' !'' #8' '')&' #1,'')'
&$,' #8' '')&' & . '' #8' +' +$ (' -$"&' $>&+"?' $+' $8#,&+$ (' *&,#'
'',$'+8&,,&('''#' '')&' #%% ++ #'&,+' #8' +' $>&+"?;+' E##(+6' 5*&+''+6'
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5&,+#'+' $+' %$?' @&' '#% '$''&(' $'(' $22# '''&(' '' %$''&,')&,& 'B$8''&,'
%&''' #'&(' &' '' '')&,&8#,&' &'$!''&(' E' '')&' D ' .;+' %#+'' 9!&--&'''
$>&+"?6' @?' $'(' * '')' '')&' (4 !&' $'(' #'+&''' #8' '')&' #,(+' 2 , ''1$-'
$'(' &%2#,$-6' $'(' #%%#'+6' '' '') +' 2,&+&''' 5$,- $%&''' $++&%@-&(A'
+ ZD/E' .' $'(' @?' '')&' 1'')#, ''?' #8' '')&' +$%&')$'' 8,#%' $'(' $8''&,' '')&' 2$++ ' .'
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B #D/E' I#GD/' !'' #8' '')&' #1,'')' &$,' #8' '')&' & . '' #8' +' -$"&' $>&+"?' D ' .'
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4 + #'+' #8' ")&' +$ (' +&4&,$-')&,& 'B@&8#,&' ,&! "&(' !"+' $'(' ") +' !"6

' '(' @&' " 81,")&,' &'$!"&(')$" " +)$--' @&' -$*81-' 8#,' ")&' + ZD/' 3 '2C'
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+1,?' #8' ")&' V' "&(' D '.(#%' #8' ' (' $'(' ' 8#,' ")&' 3 #27 (O^
%&' @& '.6' #,' $'?'),&&' #,' %#,&' #8' ")&%6' @?' $'?' E , " '.' 1'(&,' O EE #D/E
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&9!&&('.' #1,' '' ")&' *)#-&[' "#' @&' #%% ++ #'&,+' 8#,' ")&' 9&!1" #'
#8' ") +' !"6' '' $(("#'' "#' ")&' #%% ++ #'&,+')&,& 'B@&8#,&' '#% '$"&('
$'(' $22# '"&(' ' $'(' +1!)' #%% ++ #'&,+' +#' &-&!"&(' +)$--')$4&' $'('
2#++&++' $'(' $,&')&,&@?' (&!-$,&(' "#' @&' '4&+"&(' * ")' ")&' +$%&' $'('
- :&' 5#*&,+' $'(' 1")#, " &+' 8#,' ")&' 9&!1" #'' #8' ") +' !" $+' 8
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)&,&@?' $1")#, L&(6' &%2#*&,&(6' $'(',&C1 ,&(6' "#' &9&,! +&' $'(' !$,,?
'"#' &88&!" $--' ")&' 5#*&,+6' 1")#, " &+6' -$1+&+6' '$!"%&'"+6' $'(' E #D/E'
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")&' +&4&,$-' #")&,' !"+')&,& 'B@&8#,&' ,&! "&(6' & ")&,' &92,&++-?' #,' @?'
,&8&,&'!&' "#' $'?' #")&,' !" #,' !"+6' $+' 81--?6' $%2-?6' $'(' &88&!"1$--?' $+'
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< ' '(' @&' " 81,")&,' &'$!"&(')$" ")&' 5#*&,+' $'(' 5,#4 + #'+' BDD3 #4E' .'
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35' E #D/E

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#8ˁ ") +ˁ !"ˁ $"ˁ &&" ' .+ˁ "#ˁ @&ˁ)&-(ˁ $+ˁ)&,& 'B$8"&,ˁ ,$&'" ##&(ˁ $'(ˁ ")$"ˁ $"ˁ $'?ˁ +1!)ˁ &&" ' .ˁ "ˁ +)$--ˁ @&ˁ +188 ! &'"ˁ 8ˁ),&&ˁ #%% ++ #'&,+ˁ +)$--ˁ @&ˁ 2,&+&'"ˁ @1"ˁ '#ˁ !"ˁ +)$--ˁ @&ˁ (#'&ˁ $"ˁ $'?ˁ &&" ' .ˁ 1'-&++ˁ ")&ˁ #%% ++ #'&,+ˁ #8ˁ +ˁ $>&+"?;+ˁ E##(+6ˁ #,&+"+6ˁ $'(ˁ &4&'1&+6ˁ E#,:+6ˁ " '(ˁ 1-('.+6ˁ 8#,ˁ ")&ˁ %&ˁ @& '.6ˁ #,ˁ '&ˁ #8ˁ ")&%6ˁ +)$--ˁ @&ˁ 2,&+&'"ˁ $'(ˁ 8#,ˁ ")&ˁ 51 B2#+&ˁ #8ˁ &9&!1" ' .ˁ ")&ˁ 5#*&,+ˁ $'(ˁ 5,#N 4+#'+ˁ #8ˁ ") +ˁ !"ˁ ")&ˁ +$ (ˁ #%% ++ #'&,+ˁ +)$--ˁ $'(ˁ ")&?ˁ $,&ˁ)&,&@?ˁ ,&C1 ,&(ˁ "#ˁ %&&"ˁ 8,#%ˁ %&ˁ "#ˁ %&ˁ $"ˁ +1!)ˁ %&+ˁ $'(ˁ 5-$!&+ˁ $+ˁ +)$--ˁ @&ˁ &92&(&'"

' . . HD/E #GD/ˁ . /OD/ˁ H3Eˁ 3 ˁH #3#IDˁ 3 77ˁ /DO FDG

< ˁ '(ˁ @&ˁ "ˁ 81,")&,ˁ &'$!"&(ˁ)$"ˁ ")&ˁ +&4&,$-ˁ 88 !&,+ˁ $22# '"&(ˁ @?ˁ ")&ˁ #%% ++ #'&,+ˁ '$%&(ˁ 'ˁ ")&ˁ +$ (ˁ ,&! "&(ˁ !"ˁ #8ˁ ")&ˁ #1,")ˁ &$,ˁ #8ˁ ")&ˁ & . 'ˁ #8ˁ +ˁ +$ (ˁ -$"&ˁ $>&+"?ˁ D ' .ˁ ˁ ")&ˁ #1,")ˁ +)$--ˁ !#'" '1&'"#ˁ $!"ˁ 'ˁ ")&ˁ +$%&ˁ 2! "?6ˁ 8#,ˁ ")&ˁ 51,2#+&+ˁ #8ˁ ") +ˁ !"6ˁ 1'" -ˁ ")&?ˁ +)$--ˁ @&ˁ ,&%#4&(ˁ @?ˁ ")&ˁ #%% ++ #'&,+ˁ 8#,ˁ ")&ˁ 9&N !1" #'ˁ #8ˁ ") +ˁ !"ˁ $'(ˁ +1!)ˁ +&4&,$-ˁ 88 !&,+ˁ +)$--ˁ $!!#1'"ˁ "#ˁ ")&ˁ +$ (ˁ #%% ++ #'&,+ˁ 8#,ˁ ")&ˁ 9&!1" #'ˁ #8ˁ ") +ˁ !"ˁ 'ˁ ")&ˁ +$%&ˁ $''&,ˁ $+ˁ ")&?ˁ *#1-(ˁ)$4&ˁ (#'&ˁ 8ˁ ")&?ˁ)$(ˁ @&&'ˁ $22# '"&(ˁ @?ˁ +1!)ˁ -$+"B%&'" #'&(ˁ #%% ++ #'&,+ 1

= 2GEˁ >2/ˁ FDE DG%ˁ #ˁ #%%+B E #D/E I#GD/ˁ 3" Eˁ !"ˁ

< ˁ '(ˁ @&ˁ "ˁ 81,")&,ˁ &'$!"&(ˁ)$"ˁ ")&ˁ +&4&,$-ˁ #$(+6ˁ $,Bˁ)#1,+6ˁ $'(ˁ , (.&+ˁ *) !)ˁ @?ˁ ")&ˁ +$ ()&,& 'B@&8#,&ˁ ,&! "&(ˁ !"ˁ #8ˁ ")&ˁ &$,ˁ #8ˁ ")&ˁ & . 'ˁ #8ˁ +ˁ -$"&ˁ $>&+"?ˁ D ' .ˁ ˁ ")& #1,")ˁ *&,&ˁ 4&+"&(ˁ 'ˁ ")&ˁ #%% ++ #'&,+ˁ $22# '"&(ˁ @?ˁ ")$"ˁ !"6ˁ $'(ˁ $--ˁ ")&,ˁ #$(+ˁ $'(ˁ , (.&+6ˁ $'(ˁ $--ˁ 1,'2 :&+6ˁ #--+6ˁ #--ˁ #1+&+6ˁ H$"&+6ˁ E& .) '.ˁ $!) '&+6ˁ $'(ˁ $--ˁ $'(+6ˁ #1+&+6ˁ T1$,, &+6ˁ $'(ˁ H,$4&-ˁ 5"+6ˁ #,ˁ #")&,ˁ &,&("$%&'"+6ˁ 5,#2&," &+6ˁ .)"+6ˁ $'(ˁ 5, 4 N -&.&+ˁ *)$"+#&4&,6ˁ 4&+"&(ˁ 'ˁ +1!)ˁ #%% ++ #'&,+ˁ 1'(&,ˁ ")&ˁ +$ (ˁ ,&! "&(ˁ !"+6ˁ +)$--ˁ 8,#%ˁ $'(ˁ $8"&,ˁ ")&ˁ 2$++ ' .ˁ #8ˁ ") +ˁ !"ˁ @&ˁ $'(ˁ @&!#%&ˁ $'(ˁ +)$--ˁ ,&%$ 'ˁ 4&+"&(ˁ 'ˁ ")&ˁ #%% ++ #'&,+ˁ 8#,ˁ ")&ˁ %&ˁ @& '.ˁ 8#,ˁ ")&ˁ 9&!1" #'ˁ #8ˁ ") +ˁ !"ˁ $'(ˁ $--ˁ $"&, $-+6ˁ ##-+6ˁ $,,#*+6ˁ 1,N '"1,&6ˁ $'(ˁ #")&,ˁ) '.+ˁ *) !)ˁ '#*ˁ @&-#V.ˁ "#ˁ ")&ˁ #%% ++ #'&,+ˁ 8#,ˁ ")&ˁ 9&!1" #'ˁ #8ˁ ")&ˁ #1,")ˁ &$,ˁ #8ˁ ")&ˁ & . 'ˁ #8ˁ +ˁ +$ (ˁ -$"&ˁ $>&+"?ˁ +)$--ˁ 8,#%ˁ)&'!&8#,")ˁ @&-#' .ˁ "#ˁ $'(ˁ +)$--ˁ @&ˁ $'(ˁ @&!#%&ˁ ")&ˁ 5,#2&,"?ˁ #8ˁ ")&ˁ #%% ++ #'&,+ˁ 8#,ˁ ")&ˁ 9&!1" #'ˁ #8ˁ ") +ˁ !"

DHI/ 3DEˁ . /ˁ 2#Eˁ O /^ / ZDGˁ I#GD/ˁ . /OD/ˁ H3Eˁ # 3ˁ 3 ˁODˁ C/D5IG HDGˁ OSˁ 3" Eˁ H3Nˁ 2#Gˁ D2EDEˁ 2#Gˁ (#3/2H3Eˁ 3 ˁH #3#IDˁ F27 G

ˁ '(ˁ @&ˁ "ˁ 81,")&,ˁ &'$!"&(6ˁ)$"ˁ Wˁ #$'+ˁ #,ˁ 1%+ˁ #8ˁ #'&?ˁ *) !)ˁ)$4&ˁ @&&'ˁ @#,,#*&(ˁ #,ˁ ,$ +&(ˁ #,ˁ *) !)ˁ %$?ˁ @&ˁ '#*ˁ (1&ˁ $'(ˁ #*'.ˁ @?ˁ ")&ˁ #%% ++ #'&,+ˁ $22# '"&(ˁ @?ˁ ")&ˁ $(ˁ ,&! "&(ˁ !"ˁ #8ˁ ")&ˁ #1,")ˁ &$,ˁ #8ˁ ")&ˁ & . 'ˁ #8ˁ +ˁ +$ (ˁ -$"&ˁ $>&+"?ˁ D ' .ˁ ˁ ")&ˁ #1,")ˁ $+ˁ $8#,&+$ (6ˁ 1'(&,ˁ #,ˁ @?ˁ 4,"1&ˁ #8ˁ ")&ˁ 5,#4 + #'+ˁ #8ˁ ")&ˁ)&,&'B@&8#,&ˁ ,&! "&(ˁ !"+ˁ #,ˁ $'?ˁ #8ˁ ")&%6ˁ $'(ˁ $--ˁ '"&,&+"ˁ (1&ˁ $'(ˁ "#ˁ @&!#%&ˁ (1&ˁ ")&,&#'ˁ ,&+2&!" 4&-?6ˁ)$--ˁ @&ˁ 2$ (ˁ $'(ˁ (+!)$,.&(ˁ @?ˁ ")&ˁ #%% ++ #'&,+ˁ 8#,ˁ ")&ˁ 9&!1" #'ˁ #8ˁ ") +ˁ !"6ˁ $+ˁ 81--?ˁ $'(ˁ &88&!"1$--?ˁ "#ˁ $--ˁ '"&'"+ˁ $'(ˁ 51,2#+&+ˁ $+ˁ 8ˁ +1!)ˁ #'&ˁ &+ˁ)$(ˁ @&!#%&ˁ (1&ˁ $'(ˁ #*'.ˁ 8,#%ˁ ")&ˁ +$ (ˁ -$+"B%&'" #'&(ˁ #%% ++ #'&,+ˁ $'(ˁ $--ˁ $'(ˁ &4&,?ˁ 5&,+#'ˁ $'(ˁ 5&&,+#'+ˁ *)#ˁ %$?ˁ *&ˁ #,ˁ @&ˁ +1@>&!"ˁ #,ˁ -$@-&ˁ "#ˁ ")&ˁ 5$?%&'"ˁ #8ˁ $'?ˁ 1%ˁ #,ˁ 1%+ˁ #8ˁ #'&?ˁ "#ˁ ")&ˁ +$ (ˁ #%% ++ #'&,+ˁ $22# '"&(ˁ @?ˁ ")&ˁ +$ (ˁ ,&! "&(ˁ !"ˁ #8ˁ ")&ˁ #1,")ˁ &$,ˁ #8ˁ ")&ˁ & . 'ˁ #8ˁ +ˁ +$ (ˁ -$"&ˁ $>&+"?ˁ $+ˁ $8#,&+$ (ˁ #,ˁ "#ˁ $'?ˁ #,ˁ &")&,ˁ #8ˁ ")&%ˁ #,ˁ "#ˁ $'?ˁ 5&,+#'ˁ #,ˁ 5&,+#'+ˁ 8#,ˁ ")&ˁ +$ (ˁ #%% ++ #'&,+6ˁ +)$--ˁ @&ˁ -$@-&ˁ "#ˁ ")&ˁ 5$?%&'"ˁ #8ˁ $--ˁ +1!)ˁ 1%ˁ $'(ˁ 1%+ˁ #8ˁ #'&?ˁ "#ˁ

"#' ")&' #%% ++ #'&,+' 8#,' ")&' 9&!1" #'' #8' ") +' !" ' $'(' $--' &$+&+6'
3&&(+6' #'(+6' #4&'$'"+6' .,&&%&'"+6' #'",$!"+6' $'(' &!1, " &+'
&'"&,&(' '"#' @?' $'?' 5&,+#'' #,' 5&,+#'+' "#' #,' * ")' ")&' +$ (' #%% +N
+ #'&,+' $22# '"&(' @?' ")&' +$ (' ,&! "&(' !"' #8' ")&' #1,")' &$,' #8' ")&'
& . '' #8' +' +$ (' -$"&' $>&+"?' $+' $8#,&+$ (6' #,' "#' #,' * ")' ")& ,' -&, :6'
,&$+1,&,6' #,' #")&,' 88 !&,6' 1'(&,' #,' @?' 4 ,"1&' #8' ")&' 5#*&,+' #,' 3 ,&!N
" #'+' #8' & ")&,' #8' ")&' +$ (')&,& 'B@&8#,&' ,&! "&(' !"+6' +)$--' ,&%$ '' ''
81--' #,!&' $'(' 88&!"6' $'(' +)$--' @&' $'(' !#'" '1&' 4 -$@-&' '' $--' #1,"+'
#8' $*' $'(' C1 "?6' 1'" -' ")&' +$%&' $,&' 81--?' +$" +8 &(' $'(' 2&,8#,%&(' #''
$!!#1'' $'(' 8#,' ")&' &'&8' #8' ")&' #%% ++ #'&,+' 8#,' ")&' 9&!1" #''
#8' ") +' !"6' $'(' +)$--' @&' 4&+"&(' '' +1!)' -$+"B%&'" #'&(' #%% ++ #'&,+6'
$'(' +)$--' $'(' %$?' @&' &'8#,!&(' $'(' ,&!#4&,&(' 12#'' '' $'?' !" #'' #,'
1 '' "#' @&' @,#1.)' $'(' !$,, &(' #'' '' ")&' $%&' #8' ")&' -&, :' 8#,' ")&'
%&' @& ' .' "#' ")&' +$ (' -$+"B%&'" #'&(' #%% ++ #'&,+' $'(' $--'
&$+&+6' 3&&(+6' ++ . '%&'"+6' &!1, " &+6' #'",$!"+6' #,' .,&&%&'"+'
(1-?' %$(&' #,' &'"&,&(' '"#' @?' ")&' +$ (' #%% ++ #'&,+' $22# '"&(' @?'
")&' +$ (' ,&! "&(' !"' #8' ")&' #1,")' &$,' #8' ")&' & . '' #8' +' +$ (' -$"&'
$>&+"?' $+' $8#,&+$ (6' "#' #,' * ")' $'?' 5&,+#'' #,' 5&,+#'+6' +)$--' ,&%$ ''
'' 81--' #,!&' $'(' 88&!"6' $'(' @&' #@+&,4&(' $'(' :&2' @?' ")&' +$ (' #%N
% ++ #'&,+' 8#,' ")&' 9&!1" #'' #8' ") +' !"6' $!!#,(' .' "#' ")&' &,%+'
$'(' " 21-$" #'+' ")&,&#8' ,&+2&!" 4&-?6' $'(' +)$--' $'(' %$?' @&' &'8#,!&('
$'(' ,&!#4&,&(' 12#'' '' $'?' !" #'' #,' 1 '' "#' @&' @,#1.)' $.$ '+"'
")&' -&, :' 8#,' ")&' %&' @& ' .' "#' ")&' +$ (' -$+"B%&'" #'&(' #%% +N
+ #'&,+

' '(' @&' '' 81,")&,' &'$!"&(')$"' $--' #' &+6' --+6' #,' 3 ,$8"+'77' B # DE'
'#*' '' ")&' $'(+' #8' ")&' #%% ++ #'&,+' $!" ' .' '' &9&!1" #'' #8' ")&' # Z' # 3"D'
+$ (' ,&! "&(' !"' #8' ")&' #1,")' &$,' #8' ")&' & . '' #8' +' -$"&' $>&+"?' >2#GE' .'3"D'
D ' . ' ")&' #1,")6' #,' #8' ")& ,' ,&$+1,&,' #,' &!,&"$,?6' #,' '' $'?' (O O E^
$' :' 2-$!&(' "#' ")&' ,&(' '' #8' $'?' !!#1'' #,' !!#1''+' 1'(&,' ")&' E #D/E' I#GD/'
#'",#1-' #8' ")&' +$ (' #%% ++ #'&,+' #,' #8' ")& ,' ,&$+1,&,' #,' &!,&N ' ' 'H 'W& '
"$,?6' +)$--' %%&($"&-?' $8"&,' ")&' 2$++ ' .' #8' ") +' !"' @&' 2$ (' '"#' /' "D/D2.3D/'
")&' $' :' #8' . '"#' ")&' !!#1'' #8' ")&' #%% ++ #'&,+' #8' +' 3 ' OD' /D^
$>&+"?;+' E##(+6' #,&+"+6' $'(' &4&'1&+6' E#,:+6' $'(' 1 -(' .+6' 'N HD FDG' O6'
" "1-&(' \ )&' E##(+' $'(' #,&+"+' 1'(6^ #,' "#' +1!)' #")&,' !!#1'' * ")' 3"D' (O O E^
")&' +$ (' $' :' #8' . ' $+' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' %&' E #D/E' I#GD/'
@& ' .' #8' +' $>&+"?;+' E##(+6' #,&+"+6' $'(' &4&'1&+6' E#,:+6' $'(' 3" E' H3!' 3 'OD'
1 -(' .+' +)$--' (,&!"' $'(' $--' 1%+' #8' #'&?6' --+6' $'(' 3 ,$8"+' C2 G' #3 '3"D'
*) !)' +)$--')&,&$8"&,' @&' ,&!& 4&(' @?' ")&' #%% ++ #'&,+' 8#,' ")&' 9&N 2#]' .'
!1" #'' #8' ") +' !"6' ")& ,' .&'"+' #,' &!& 4&,+6' #'' $!!#1'' #8' #--+6' #472#G' 3 '
$"&+6' $'(' ++&++%&'"+6' #,' 8,#%' $'?' #")&,' #1,!&' *)$"+#&4&,6' 1'(&,' 3"D' HH I#3'
#,' @?' 4 ,"1&' #8' ")&')&,& 'B@&8#,&' ,&! "&(' !"+' #,' ") +' !"6' #,' $'?' #8' .'3"D' (O^
")&%6' +)$--' @&' 2$ (' @?' ")&%' '"#' ")&' $' :' #8' . ' $+' +##'' $+' O EE #D/E' .'
!#'4&' &'"-?' %$?' @&' $8"&,' ")&' +$%&' +)$--')$4&' @&&'' ,&!& 4&(' ' $'(' $-- @ GE!' H
1%+' #8' #'&?6' --+6' $'(' 3 ,$8"+' *) !)' +)$--' @&' ,&!& 4&(' @?' ")&' +$ ('
#%% ++ #'&,+' #'' $'?' #8' ")&' !!#1''+' $8#,&+$ (' $"' ")& ,' 88 !&' ''
' +)$--' @&' 2$ (' @?' ")&%' '"#' ")&' $' :' #8' . ' * ") '' '&'
3$?' $8"&,' ")&' +$%&' +)$--')$4&' @&&'' +#' ,&!& 4&(6' #,' * ") '' '&' 3$?'
$8"&,' $'?' +1!)' --' #,' 3 ,$8"' +)$--')$4&' @&&'' $!!&2"&(6' !#%2-&"&(6' $'('
2&,8&!"&(6' 8' ")&' +$%&' @&' '#' $!!&2"&(6' !#%2-&"&(6' $'(' 2&,8&!"&(' $'
")&' %&' '' +)$--' @&' ,&!& 4&(' ' $'(' $--' #' &+6' --+6' $'(' 3 ,$8"+' *) !)'
+)$--' @&' ,&!& 4&(' @?' ")&' $' :' #8' . ' '' 21,+1$'!&' #8' ")&' 5,#N
4 + #'+' #8' ") +' !"' +)$--' @&' 2-$!&(' "#' ")&' +$ (' !!#1''' '' "1-&(' \ )&'
E##(+' $'(' #,&+"+' 1'(6^ #,' "#' +1!)' #")&,' !!#1'' $+' $8#,&+$ ('
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+ $>&+"?;+ E##(+6 #,&+"+6 $ ' (&4& ' 1&+6 E#, : +6 $ ' (1 -(' . +6
#, $ ' ? * # #8 ") &%6 +)$-- @& +188 ! & ' " 1")#, "? "# ") & +$ ($ ' : #8
. "#7>$?6 $22-?6 $ ' ((+2#+&#8") & +$ (# ' &+6 --+6 $ ' (3 ,$8"+
"# ") & 5&,+# ' #, 5&,+# ' + #, ' ") & $ ' ' &, ' +1 !) 3 ,$8"+ #, ,(&,+
,&+2&!" 4&-? %& ' " # ' &(#, +2&! 8 &($ ' ($8"&, 5$?%& ' " #8 +1 !)
' &+6 --+6 $ ' (3 ,$8"+ ' %$ ' ' &,)&,& ' B@&8#,& (,&!"&(6 ") &
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E#, : +6 $ ' (1 -(' . + 8#, ") & %& @& ' . +)$-- @& $-# ' & $ ' + * &,$@-&
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$ ' (3 ,$8"+ ,&+2&!" 4&-?

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HH I#3 3
OD]DC3 .
B # DE /D^
HD FDG 2#G
C2 G I#GD/
3" E H3

' (@& " 81,")&, & ' $!"&( )$" ") & #%% ++ # ' &,+ 8#, ") &
%& @& ' . #8 + $>&+"?;+ E##(+? #,&+"+6 $ ' (&4& ' 1&+6
E#, : +6 $ ' (1 -(' . + +)$-- !$1+& $ +&2$,$"& $ ' ((+" ' !" !!#1 ' "
"# @& :&2" ' ") & ##:+ #8 ") & , 88 !& #8 ") & # ' &+ ,&!& 4&(1 ' (&,
") & 5#*&,+ $ ' (5,#4 + # ' + #8 ") + !"6 $ ' (#8 ") & 5$?%& ' " $ ' (
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H3 3 /DCD27 E O I H" . Z H3E . 3"D DFD#3" 2#G 4"3" -D2/E 2#G 3"D) #3" -D2/ . ? #4 3"D A I/3" 2E #.7 H3E 3"D +I# E"^ OD#3 . *D23" IC # +D/E #E O/D2] #4! D#3D/ #4! 2#G E3D27 #4 # 2 *ZD77 #4 > IED M 27E . / 4 F #4 + ZD/ 3 3"D , IG4DE 3 2GG 3 3"D +I# E" OD#3 . /2#EC /323 # . / .D # HD/32 # (2EDE . A /4D/6! 2#G # HD/32 # 3"D/ (2EDE

[3" % Q _

E @? *# +&4&,$- !"+ ,&+2&!" 4&-? 2$++&(' ")& &4&'")'$'(.)")' &$,+ #8")& & . '#8 D ' . ")& #1,") $'(' ")& '")' &$, #8 ")& +$%& & . '6 ")& ,+" #8 ")& +$ (!"+ '" "1-&(* = Q $ ' . -$'(! H $ $'(")& &!#'(#8 ")& +$ (!"+ '" "1-&(* $,&-$'(7HB Q3 !'OO ! $ - " + $%#' . +" #")&,) ' . + @? &$!) #8 ")& +$ (!"+ &'$!"&(6 ")$" 8 $'? 5&,+#' +)$-- @,&$: $'(&'"&, $'? 3 *&-- ' . #1+&6 $'(+"&$- ")&,& ' $'?)$""&-6 #'&?6 #, 4-1@-& &!1, "? "# $'? <$-1& *)$"&4&,6 &4&,? +1!) 88&'(&, @& ' . !#'4 !"&(")&,&#8 +)$-- +188&, 3 &$")' $+ $ &-#" '(*)&,&$+ @? &$!) #8")& +$ (!"+ " + 81,")&, &'$!"&(6 ")$" ' ")& $+& D #8

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#8' &4&,?' &-#'?' 21' +)$@-&' 1'(&,' ")&' +$ (' ,&Y2&!" 4&' !"+' &4&,?'
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+)$--' @&' 21' +)$@-&' * ")' 3&$")6' #,' #")&, * +&6' '' ")&' $%&' $''&,' $+'
")&' 5, '! 2$-' '' ")&' ,+" 3&.,&&' +' @?' ")&' $ (' ,&+2&!" 4&' !"+'
21' +)$@-&] '(' *)&,&$+' '' +' &92&(&'" ")$" $' -&++&,' 51' +)%&''
")$'' ")$" #8' 3&$")' +)#1-(' @&' 2,#4 (&(' 8#,' ")&' +&4&,$-' 88&'!&+'
)&,& 'B@&8#,&' +2&! 8 &(' ' @&' '' ")&,&8#,&' &'$!"&(' @?' ")&' D '.;+' %#+''
9!&--&'' $>&+"?6' @?' $'(' * ")' ")&' (4 !&' $'(' H#)+&'' #8' ")&' #,(+'
2, "1$-' $'(' &%2#,$-6' $'(' #%%#'+6' '' ") +' 2,&+&'' 5$,- $%&''
$++&%@-&(6' $'(' @?' ")&' 1")#, "?' #8' ")&' +$%&6')$" +#' %1!)' #8'
&$!)' #8' ")&' +$ (' *#' ,&! "&(' !"+' $+' '8- !"+' ")&' 51' +)%&'' #8'
3&$")' #'' 5&,+#'+' !#'4 !"&(' #8' $'?' #8' ")&' &-#' &+')8 ,& 'B@&8#,&'
+2&! 8 &(' +)$--6' 8,#%' $'(' $8"&,' ")&' ,+" 3$?' #8' & ' '&' ")#1+$'('
& .)")1'(,&(' $'(") ,"?B8#1,6' @&' $'(' ")&' +$%&' +')&,&@?' ,&2&$-&(

'O I H"' .' /DH 3DG' H3E' 2E' #.7 H3E' 3"D' a7 # E"# D 3' .' * D23"' . /' 3"D' AD7 # DE' "D/D #' GD^ EH/ ODG' /D^ CD27DG

' '(' @&' " 81,")&,' &'$!"&(6')$" 8,#%' $'(' $8"&,' ")&' ,+"
#8' & ' '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"? B8#1,' &4&,?'
5&,+#'' *)#' +)$--' @&' !#'4 !"&(' #8' $'?' #8' ")&' &-#8 &+')&,& '@&8#,&'
+2&! 8 &(6' $+' 5, '! 2$-+' #,' !!&++#, &+' @&8#,&' ")&' $!"6' +)$--' @&' - $@-&'
"#' @&' ",$'+2#,"&(' @&?#'(' ")&' &$+' 8#,' 8&6' #,' 8#,' $'?' &,%' '#"
-&++' ")$'' &4&'' &$,+6' $+' ")&' #1," @&8#,&' *)#%' $'?' +1! ' 5&,+#''
+)$--' @&' !#'4 !"&(' +)$--' $(>1(.&6' $'(6' 2,&4 #1+-?' "#' ,$'+2#,"$" #'6'
+)$--' @&' - $@-&' "#' @&' %2, +#'&(6' * ")' #,' * ")#1")$,(' $@#1,6' '' ")&'
#%%#'' H$#-' #,' #1+&' #8' #,,&!" #'6' #,' "#' @&' !#'8 '&(' '' ")&'
5&' "&'" $,?' 8#,' $'?' &,%' '#" &9!&&('.' #1,' &&$,+6' #,' +)$--' @&'
- $@-&' "#' @&' %2, +#'&(6' * ")' #,' * ")#1")$,(' $@#1,6' '' ")&' #%%#''
H$#-' #,' #1+&' #8' #,,&!" #'' 8#,' $'?' &,%' '#" &9!&&('.' #1,'
&&$,+' '#,' -&++' ")$'' '&' &&$,

.3D/' 3"D' E3',2#' Q ' +D/E #E' H #^ F H3DG' .'E I H"' AD7 # DE' 3 OD' 7 2O7D' 3 ' OD' 3/2#EC /3DG!' 2#G' 3 ' O^ C/ E #O D#3!' Z 3"' /' Z 3"^ I3' "2/G' 2^ O I/!' C/D^ F IE' 3 ' /2#EC /^ 323 #

' '(' @&' " 81,")&,' &'$!"&(6')$" $--' 5&,+#'+' 21' +)$@-&' @?'
,$'+2#,"$" #'' 8#,' 8&' 1'(&,' $'' !" 2$++&(' '' ")&' &!#'(' $'('
) ,(' &&$,+' #8' ")&' & .'' #8' +' 2,&+&'' $>&+"?6' ,&-$" '.' "#' ")&'
+"&$- '.' '' 3*&-- '.' #1+&+' $'(' #")&,' 88&'!&+6' '" "1-&('
' " ' ' > * ' ' ' ' ' ' ' ' "=
' ' ' > * ' ' ' ' $'(' $--' 5&,+#'+' 21' +)A'
$@-&' @?' ,$'+2#,"$" #'' 8#,' 8&' 1'(&,' $'' " 2$++&(' '' ")&' +$%&'
&&$,+6' '" "1-&(' ' ' ' " ' ' > * ' ' ' ' ' '
' ' ' 1 ' +)$--' @&' - $@-&6' 2,&4 #1+-?' "#' ")&' ,' @&' '.'
",$'+2#,"&(6' '' !$+&' ")&' #1," @&8#,&' *)#%' 1!)' 5&,+#'+' +)$--' @&'
!#'4 !"&(' +)$--' ") ':' 8 "6' "#' @&' %2, +#'&(6' * ")' #,' * ")#1")$,('
$@#1,6' '' ")&' #%%#'' H$#-' #,' #1+&' #8' #,,&!" #'6' #,' "#' @&' !#'N
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'#,' -&++' ")$'' '&' &&$,

+D/E #E' C I# E"2O7D' Z 3"' /2#E^ C /323 #' . /' .D' I#GD/' ' ' '@' ' HH' T ' 2#G' ' 7 2O7D' 3 ' OD' C/DF IE76' OC/ E #DG' . /'A I/' -D2/E

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5, '"&,+' "#' ")&' D '.;+' %#+" 9!&--&'' $>&+"?'

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+ ZD/' .' B DD3 #4'3 ' 2G C3' 3" E' H3!' /' 3 ' GDH7 #D' 3 ' 2G C3' 3

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") +ʿ !"6ʿ $ ' (ʿ +)$--ʿ @&ʿ 2,#2#+&(ʿ $"ʿ ")&ʿ +$ (ʿ &&" ' .ʿ @?ʿ +#%&ʿ 5&,+# 'ʿ
(1-?ʿ C1$- 8 &(ʿ "#ʿ 4#"&ʿ ")&,&$"6ʿ $ ' (ʿ +)$--ʿ @&ʿ +&!# '(&(ʿ @?ʿ +#%&ʿ #")&,ʿ
5&,+# 'ʿ 'ʿ - :&ʿ $ ' '&,ʿ C1$- 8 &(ʿ $ ' (ʿ ")&ʿ 5,&+&+ʿ #8ʿ ")&ʿ &&" ' .ʿ +)$--ʿ
$+!&,"$ 'ʿ $ ' (ʿ (&!-$,&ʿ ")&ʿ &+#-1" # 'ʿ ")&,&#8ʿ 'ʿ %$ ' '&,ʿ $8#,&+$ (ʿ ʿ
$ ' (ʿ 8ʿ +1!)ʿ -&!" # 'ʿ +)$--ʿ '#"ʿ @&ʿ 1 '$ ' %#1+6ʿ $ ' (ʿ 8ʿ $ʿ 5#--ʿ +)$--ʿ @&ʿ
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!#'4&' &'"ʿ 5-$!&ʿ * ") "ʿ +1!)ʿ 1,.)6ʿ * ")ʿ 5#*&,ʿ "#ʿ $(>#1,"ʿ "#ʿ +1!)ʿ
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"#,+ʿ #8ʿ ")&ʿ 1,.)6ʿ #,ʿ @?ʿ ")&ʿ +&4&,$-ʿ E$,(+ʿ *)&,&ʿ +1!)ʿ 1,.)ʿ +)$--ʿ
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)&ʿ. 4&"ʿ $+ʿ +ʿ)&,& 'B@&8#,&ʿ (,&!"&(ʿ "#ʿ @&ʿ . 4&"ʿ #8ʿ +1!)ʿ ,+"ʿ &&"N
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++&++%&'"6ʿ $'(ʿ $"ʿ ")&ʿ 92 ,$" #"ʿ #8ʿ &4&,?ʿ) ,(ʿ &$,ʿ ")&,&$8"&,6ʿ $ʿ
&&" '.ʿ #8ʿ ")&ʿ ')$@ "$'"+ʿ ")&,&#86ʿ C1$- 8 &(ʿ $+ʿ $8#,&+$ (6ʿ "ʿ #,(&,ʿ "#ʿ
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3$?ʿ 8#,ʿ 8 9 '.ʿ ")&ʿ %$9 %1%ʿ %#1'"ʿ #8ʿ ")&ʿ ++&++%&'"ʿ 8#,ʿ ")&ʿ
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5,##8' #8' "- &' T1$- 8 !$" #'+' #8' ")&' 5$," &+' "#' 4#"&' $"' +1!)' &&" ' .']
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' .' '' %$''&,' $@#4&' 2,#4 (&(6' ")&' -&,:' "#' ")&' +$ (' #%% ++ #'&,+'
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+1!)' ,&'' $-' &&" ' .+' 2,#!&&(' '' ")&' +$%&' $''&,' $+' $"' ")&' EIOED\IDD#3'
,+'' &&" ' .' "#' @&')&-(' 1'(&,' ") +' !'' '' ,&.$,(' "#' ")&' +!&,"$ 'B
%&''' #8' ")&' 1%' $.,&&(' "#' @&' $++&++&('] 5,#4 (&(' $-*$?+6' ")$"' ")&' 6?&'"
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@#,,#*&(' #'' ")&' &!1, "?' #8' +1!)' ++&++%&''' +)$--' ,&%$ '' 1'2$ (6'
$'(' ")$"' ")&' $"&' #8' ++&++%&'' 8#,' $'?'),&&' +1!!&&(' .' &&$,+'
+)$--' '#' @&' -&++' ")$"' *#') ,(+' #8' ")&' $"&' $.,&&(' "#' $"' ")&' -$+"'
2,&!&(' .' ,&'' $-' &&" ' .')&-(' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"'
$'(' ")$"' 8' $' -$,.&,' 1%' +)$--' '#' @&' $.,&&(' "#6' ")&' #%% ++ #'&,+'
+)$--')$4&' 5#*&,' "#' -&4?' +1!)' *#') ,(+' #8' ")&' #, . '$-' ++&++%&''6'
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@&' &- . @-&' $+' $' #%% ++ #'&,6' #,' &'' "-&(' "#' 4#"&' $"' +1!)' -&!" #'6
6*)#' +)$--')$4&' @&&'' ,&- &4&(' 8,#%' ")&' ++&++%&''' %$(&' #'') %' 8#,'
")&' 51,2#+&+' #8' ") +' !'' 8#,' ")&' &&$,' %%&($"&-?' 2,&!&(' .' #'' ")&'
H,#1'(' #8' '$@ - "?' "#' 2$?' ")&' +$ (' ++&++%&''6' #,' @?' *)#%' $'?'
,,&$,' #8' $'?' ++&++%&'' (1&' 1'(&,' ") +' !'' +)$--' $"' ")&' %&' #8'
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+ '!&' '' @&!$%&' (1&')$4&' @&&'' (&%$'(&(6' *)&")&,' +1!)' ,,&$,' +)$--'
@&' (1&' @?') %+&-8' #,' @?' $'?' #%2$'?' #,' #2$,"'&,+) 2' @?' *) !)')&'
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&81+$-' "#' $!"' 3 +C1$- 8 !$" #'6' #,' &+ . '$" #'6' ")&'' $'(' '' +1!)' EICC7DG
$+&+' '' +)$--' @&' -$*81-' 8#,' ")&' ,&%$ ' ' .' #%% ++ #'&,+' "#' '#% '$"&'
5&,+#'+' (1-?' C1$- 8 &(' "#' +122-?' +1!)' <$!$'! &+' $'(' ")&' 5&,+#'' +#'
'#% '$"&(' +)$--')$4&' $'(' &'>#?' ")&' +$%&' 5#*&,+' $'(' 5, 4 -&.&+' $+'
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*#1-(')$4&' .#'&' #1" @?' #"$" #'' $'(' 8' ")&' -&!"#,+' +)$--' ,&81+&' 7DH3 /E' /D^
#,' '&.-&!' "#' %&&"6' #,' 8' $'' +1!)' &&" ' .' ")&' -&!"#,+' +)$--' ,&81+&' .IE #4' /'
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+ #'&,+' '' +)$--' @&')#%2&"&'' $'(' -$*81-' "#' ")&' h'')$@ "$'"+' (1-? 2#G Z#
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#8' ")&' <#"&+' #8' ")&' 5&,+#'+' $++&%@-&(' $+' $8#,&+$ (' $"' $'?' &&" ' .' #%%++#'B
!$--&(' 8#,' +1!)' 51,2#+&6' ")$"' ")&' $. +",$"&+' $'(' #*'' #1'! -' #8' D/2
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+1!)ˢ 1,.)ˢ 8#,ˢ ")&ˢ %&ˢ @& '.ˢ +)$--ˢ !$,,?ˢ ") +ˢ !"6ˢ $,ˢ +1!)ˢ 5$,"ˢ ")&,&#8ˢ $+ˢ +)$--ˢ)$4&ˢ @&&'ˢ $(#2"&(6ˢ '"#ˢ &9&!1"#'ˢ>ˢ $'(ˢ +1!)ˢ $. +",$"&+ˢ $'(ˢ #*'ˢ #1'!-ˢ ")&'ˢ +)$--ˢ)$4&ˢ ")&ˢ +$%&ˢ .)"+6ˢ 5#*&,+6ˢ 7'(ˢ 1")#, "&+6ˢ $'(ˢ @&ˢ +1@>&!"ˢ "#ˢ ")&ˢ -:&ˢ 1-&+6ˢ J$B @-"&+6ˢ $'(7 &.1-$"#'+6ˢ $+ˢ $,&ˢ)&,&@?ˢ !#'8&,,&(ˢ #,ˢ %2#+&(ˢ 12#'ˢ ")&ˢ #%%++#'&,+ˢ)&,& 'B@&8#,&ˢ $1")#, L&(ˢ $'(ˢ (,&!"&(ˢ "#ˢ @&ˢ &-&!"&(6ˢ $+ˢ 8$,ˢ $+ˢ ")&ˢ +$%&ˢ $,&ˢ $22- !$@-&ˢ $'(ˢ !$2$@-&ˢ #8ˢ "$: '.ˢ &88&!"6ˢ $!!#,('.ˢ "#ˢ ")&ˢ",1&ˢ '"&'"ˢ 2#G &$' '.ˢ #8ˢ ") +ˢ !"

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<ˢ '(ˢ @&ˢ "ˢ &'$!"&(6ˢ)$"ˢ '#'&ˢ #8ˢ ")&ˢ #%%++#'&,+ˢ 8#,ˢ ")&ˢ 51,2#+&+ˢ #8ˢ ") +ˢ !"ˢ +)$--6ˢ (,&!"-?ˢ #,ˢ '(,&!"-?6ˢ (&, 4&ˢ $'?ˢ %#-1%&'"ˢ #,ˢ 5,#8"ˢ 8#,ˢ $'?ˢ 1+ '&++ˢ #,ˢ E#,:ˢ #8ˢ $'?ˢ 3&+!, 2"#'ˢ 2&,8#,%&(ˢ #,ˢ "#ˢ @&ˢ 2&,8#,%&(ˢ @?ˢ)%ˢ 1'(&,ˢ ") +ˢ !"ˢ '#,ˢ +)$--ˢ $'?ˢ #%%++#'&,ˢ @&ˢ !$2$@-&ˢ #8ˢ $!" '.ˢ $+ˢ +1!)ˢ (1, '.ˢ ")&ˢ %&ˢ)&ˢ +)$--ˢ &'>#?ˢ $'?ˢ 88!&ˢ #8ˢ 5,#8"ˢ "#ˢ @&ˢ !,&$"&(ˢ #,ˢ &+"$@-+)&(ˢ @?ˢ 4,"1&ˢ #8ˢ ") +ˢ !"6ˢ #,ˢ *)-&ˢ)&ˢ)$+ˢ $'?ˢ)$,&ˢ #,ˢ '"&,&+"ˢ '$'?ˢ #'",$!"ˢ,&-$" '.ˢ "#")&ˢ 9&!1"#'ˢ")&,&#8ˢ '#,ˢ +)$--ˢ $'?ˢ +1!)ˢ #%N %++#'&,ˢ @&ˢ !2@-&ˢ #8ˢ +"$'('.ˢ $+ˢ $ $'((ˢ$"&ˢ 8#,ˢ $'?ˢ +1!)ˢ 88!&6ˢ #,ˢ @&ˢ $ˢ #%2&""#,ˢ 8#,ˢ $'?ˢ +1!)ˢ #'",$!"6ˢ +$4&ˢ $'(ˢ &9!&2"ˢ #'N ",$!"+ˢ &'"&,&(ˢ '"#ˢ *")ˢ $'?ˢ)$,"&,&(ˢ #,ˢ R#'ˢ "#!:ˢ #%2$'?ˢ #8ˢ *) !)ˢ +1!)ˢ #%%++#'&,ˢ %$?ˢ @&ˢ '5$,"'&,

(0 0 EE #^ D/E 3 ˢ ODˢ E I 0 0 #DGˢ 3 ˢ 233D#Gˢ B DD3 #4E

<ˢ '(ˢ @&ˢ "ˢ &'$!"&(ˢ)$"ˢ ")&ˢ *)#-&ˢ #%%++#'&,+ˢ +)$--ˢ @&ˢ !"&(ˢ "#ˢ $""&'(ˢ $--ˢ &&"'.+6ˢ @#")ˢ 2&!$-ˢ $'(ˢ +"$"1"#,?6ˢ X+$4&ˢ #'-?ˢ ")&ˢ ,+"ˢ &&"'.+ˢ 1'(&,ˢ ") +ˢ !"6[ˢ +1!)ˢ "$"#'ˢ @&'.ˢ .4&'ˢ 2&,+#'$--?6ˢ #,ˢ $"ˢ ")&,ˢ 3*&--'.ˢ #1+&+ˢ #,ˢ)#2+6ˢ @?ˢ *,""&'ˢ #,ˢ 2,'"&(ˢ 1%%#'+&+ˢ ++1&(ˢ @?ˢ ")&,ˢ -&,:6ˢ $"ˢ -&$+"ˢ *&'"?B8#1,ˢ #1,+ˢ @&8#,&ˢ ")&ˢ %&ˢ #8ˢ %&&"'.ˢ $'(ˢ '")&ˢ @+&'!&ˢ #8ˢ ")&ˢ +$(ˢ $!"'.ˢ)&8ˢ $. +",$"&ˢ +1!)ˢ #'&ˢ #8ˢ ")&ˢ +$(ˢ #%%++#'&,+ˢ $+ˢ +)$--ˢ @&ˢ !)#+&'ˢ @?ˢ ")&ˢ &&"'.ˢ +)$--ˢ 2,&+(&ˢ 'ˢ $--ˢ &&"'.+ˢ #8ˢ ")&ˢ +$(ˢ #%%++#'&,+ˢ $'(ˢ ")&ˢ 5,&+&'"ˢ #8ˢ $--ˢ &&"'.+ˢ #8ˢ ")&ˢ #%%++#'&,+ˢ +)$--ˢ)$4&ˢ @#")ˢ$ (&-@&,$"4&ˢ $'(ˢ '!$+&ˢ #8ˢ C1$-"?ˢ $!$+"'.ˢ<#"&ˢ

YI /I 0

'ˢ $--ˢ $""&,+ˢ *)!)ˢ +)$--ˢ !#%&ˢ @&8#,&ˢ ")&%ˢ] 5,#4(&(ˢ $-*$?+6ˢ")$"ˢ '&ˢ),(ˢ #8ˢ ")&ˢ +$(ˢ #%%++#'&,+ˢ %1+"ˢ @&ˢ 2,&+&'"ˢ $"ˢ $--ˢ &&"'.+ˢ "#ˢ !#'+"1"&ˢ $ T1#,1%

32313 /6 B DD3 #4E E ˢ(0 0 E ˢ #D/E

<ˢ '(ˢ @&ˢ "ˢ &'$!"&(6ˢ "23 &&"'.+ˢ #8ˢ ")&ˢ +$(ˢ #%N %++#'&,+ˢ +)$--ˢ @&ˢ)&-(6ˢ '+1!)ˢ 5-$!&+ˢ $+ˢ ")&?ˢ +)$--ˢ $22#'"ˢ *") ' 1,.@612#'ˢ ")&ˢ &!#'(ˢ 8"8&& #'")+ˢ #8ˢ 9 *" ˢ$'(ˢ 1 " ˢ &$!)ˢ -D2/!$"ˢ *&-4&ˢ #8ˢ")&ˢ -#!:ˢ ##'

CDH 27ˢ B DD3^ #4Eˢ 026ˢ ODˢ H277DGˢ # =D\ I E 3 #

ˢ '(ˢ @&ˢ "ˢ &'$!"&(ˢ)$""@&ˢ -&,:ˢ "#ˢ ")&ˢ +$(ˢ #%% +N +#'&,+6ˢ #'ˢ &C1+"#'ˢ @&ˢ '.ˢ %$(&ˢ "$"'.ˢ")&ˢ @>&!"ˢ #8ˢ ")&ˢ 'N "&'(&(ˢ &&"'.ˢ E, "'.6ˢ $'(ˢ+.'&(ˢ @?ˢ *#ˢ #8ˢ ")&ˢ +$(ˢ #%% +N +#'&,+6ˢ +)$--ˢ !$1+&ˢ 2&!$-ˢ &&"'.ˢ"#ˢ @&ˢ !$--&(ˢ *") ˢ #,"?B&.)"ˢ #1,+6ˢ $'("#@&ˢ)&-(ˢ*")ˢ #1,ˢ 3$?+ˢ $8"&,ˢ+1!)ˢ &C1+"#'ˢ $'(ˢ +)$--ˢ !$1+&ˢ ")&ˢ *)#-&ˢ #%%++#'&,+ˢ "#ˢ @&ˢ +1%%#'&(ˢ "#ˢ $""&'(ˢ +1!)ˢ &&"'.+ˢ @?ˢ 2,'"&(ˢ #,ˢ *,""&'ˢ !2'"$'.ˢ $ˢ #2?ˢ #8ˢ +1!)ˢ &C1+"#'

CDH 27ˢ B DD3^ #4Eˢ # 3ˢ 3 0%GDˢ 2 ;ˢ

ˢ '(ˢ @&ˢ "ˢ &'$!"&(ˢ)$"ˢ '#ˢ 1-&+ˢ #,ˢ &.1-$"#'+ˢ +)$--ˢ @&ˢ $(#2"&(ˢ #,ˢ !$,,&(ˢ '"#ˢ &9&!1"#'ˢ @?ˢ $'?ˢ 2&!$-ˢ &&"'.ˢ *)!)ˢ +)$--ˢ "&'(ˢ "#ˢ $-"&,ˢ #,ˢ $'' 1-ˢ $'?ˢ 1-&+ˢ #,ˢ &.1-$"#'+ˢ *)!)ˢ %$?)$4&

)$4&' @&&'' %$(&' $'(' 8,$%&(' $" $'?' #8' ")&' #1,' &&" '.+')&,&@?' 32313 /6'
$22# '"&('"#' @&')&-(' $''1$--?' B DD3 #4E

' '(' @&' "' &'$!"&(6')$"' ")&' +$ (' #%% ++ #'&,+' %$?' B DD3 #4E'
$(>#1,'' "#' $'?' #")&,' 3$?6' #1,6' $'(' 5-$!&' * ") '' ")&' #1'(+' @&8#,&'
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' '(' @&' "' &'$!"&(')$"' $"' $--' $'(' &$!)' #8' ")&' &&" '.+' (O O EE #'
"#' @&')&-(' '' 4 ,"1&' #8' ") +' !"' ")&' #%% ++ #'&,+' 2,&+&'"' +)$--' (&8,$?'
(&8,$?' ")& ,' #*'' 92&'!&+' &CD# DE

' '(' @&' "' &'$!"&(')$"' ")&' +$ (' #%% ++ #'&,+' +)$--' + ZD/' 3 '
)$4&' 5#*&,' "#' 8#,%' #%% ""&&+' #8' ")& ,' 1%@&,6' & ")&,' * ")' 3 ,&!B' 2CC #3(O '
"#'+' "#' ,&2#,"' "#' ")&' #%% ++ #'&,+6' #,' 8#,' !$,,? ' .' ")&' 4$, #1+'
51,2#+&+' #8' ") +' !"' '"#' &9&!1" #'6' $'(' "#' (&-&.$"&' "#' +1!)' #%N
% ""&&+' ")&' 5#*&,+' !#%2&"&'"' "#' ")&' +$ (' #%% ++ #'&,+' 1'(&,' ") +'
!"6' '' *)#-&' #,' ''2$,"6' * ")' ,&.$,(' "#' ")&' 1@>&!"' *) !)' %$?' @&'
,&% ""&(6' "#' '$%&' ")&' #'4&'&,6' $'(' "#' 8 9' ")&' 1%@&,+' #8' +1!)'
#%% ""&&+' *)#' +)$--' 8#,%' $' T1#,1%' $'(' ")&' #'4&'&,6' *)#'
+)$--' 2,&+ (&' $" +1!)' #%% ""&&6' +-$--' @&' &'" "-&(' "#' $' !$+" '.' <#"&'
'' !$+&' #8' C1$- "?6' $'(' "#' !#'4&'&' ")&' &%@&,+' @?' #" !&+' '' ")&'
E$?')&' +)$--' ") ':' %#+" !#'4&' &'"

<' '(' @&' "' &'$!"&(6')$"' ")&' +$ (' #%% ++ #'&,+' +)$--6' '' + ZD/E' 2#G'
+1!)' $''&,' $+' "#' ")&%' +)$--' +&&%6' @&+" 8#,' ")&' 51,2#+&+' #8' ") +' 31" &+' #8'
!"6' &+" %$"&6' $++&++6' -&4?6' $'(' $22-?' ")&' 1%+' #8' #'&?')&,&@?' (O O EE #'
$1")#, L&(' "#' @&' ,$ +&(' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' $'(' +)$--')$4&'
5#*&,' $" +1!)' %&+' $+' ")&?' +)$--' $22# '"6' $'(' 8,#%' %&' "#' %&6'
"#' #,(&,' $'(' (,&!"' +"+' "#' @&' "$:&'' #8' ")&' ')$@ "$'"+' #8' +1!)'
1,.)6' $'(' #8' ")&' <$-1&' #8' 5,&% +&+ + "1$"&' ")&,& '6' $'('+)$--' 8#,' +1!)'
51,2#+&+' $22# '"6' $" +1!)' $-$, &+' $+' ")&?' +)$--' >1(.&' %&&"6' #--&!"#,+6'
-&,:+6' 1,4&?#,+6' 88 !&,+' #8' 5#- !&6' E$"!)%&'6' $'(' $--' #")&,' 5&,N
+#'+' "#' @&' &%2-#?&(' '' ")&' 9&!1" #'' #8' ") +' !"6' $'(' "#' ,&%#4&'
")&%' $" 5-&$+1,&6' $'(' "#' 8 9' ")&' 1%@&,' $'(' 3&+!, 2" #'' #8' 88 !&,+'
"#' @&' &%2-#?&(6' $'(' ")&' E$.&+' "#' @&' 2$ (' "#' ")&%' ,&+2&!" 4&-?6' $'('
"#' '!,&$+&' #,' (%' '+)' ")& ,' 1%@&,+' 8,#%' %&' "#' %&6' $+' ")&?'
+)$--' +&&' $1+&6' $'(' "#' %$:&' ,(&,+' $'(' &.1-$" #'+' 8#,' ")& ,'
H#4&,'%&''' $'(' ")&' +$ (' #%% ++ #'&,+' +)$--')$4&' 5#*&,' $-+#6' * ")'
")&' #'+&'"' #8' ")&' 5,#2, &"#,+6' "#' 21,!)$+&' +1!)' $'(+' $'(' 5,&% +&+'
$+' +)$--' @&' ,&C1 ,&(' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' $'(' +)$--' $-+#')$4&'
81--' 5#*&,' $'(' 1")#, "?' "#' %$:&' $--' '&!&++$,?' 1-&+6' ,(&,+6' $'('
&.1-$" #'+' ,&-$" 4&' "#' ")&' *$"!) '.6' - .)" '.' * ")' H$+' #,' #")&,* +&6'
2$4 '.' $'(' !-&$'+ '.' ")&' ",&&"+6' #$(+6' $'&+6' 5$++$.&+6' #,' 21@- !'
E$?+' #,' 5-$!&+' * ") '' $'?' +1!)' 1,.)6' #,' "#' ")&' 122-?' $'(' 3 +N
", @1" #'' #8' E$"&,' $'(' H$+' "#' ")&' +$%&6' '' +#' 8$,' $+' ")&' 5#*&,+' #8'
") +' !"' %$?' $22-?' "#' ")&+&' @>&!"+' '' $'?' 1,.)6' $'(' .&'&,$--?' 8#,'
")&' (1&' $'(' &88&!"1$-' '8#,!&%&'"' ")&,&#86' 8#,' ")&' 5,&4&'" #'' #8'
'8&!" #1+' 3 +&$+&+6' $'(' 21"" '.' (#*'' $'(' ,&%#4 '.' +1!)' 1 +$'!&+'
$+' %$?' $88&!" ")&' &$-")' #8' ")&' ')$@ "$'"+6' $'(' 8#,' !$,,? '.' 81--?'
'"#' &88&!" $--' ")&' @>&!"+' $'(' 51,2#+&+' $'(' 5,#4 + #'+' #8' ") +' !"6'
$'(' +)$--' &'$!"' 5&'$-" &+' 8#,' &'8#,! '.' ")&' +$%&6' '#' &9!&&(' '.' ''
$'?' $+&' ")&' 1%6' #8' *&'"?') -- '.+' "&,- '.6' $'(' &9&!1"&' ")&'
*)#-&' #")&,' $""&,+' +2&! 8 &(' '' ") +' !"' $'(' !#%% ""&(' "#' ")& ,
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)$,.&] 5,#4 (&($-*$?+6 ")$" ")& 1-&+$'(&.1-$" #'+ +# "# @& %$(& +)$-- '#" @& !#'",$,? "# ")& $* #8 #, "# $'?") '. ") + !" !#'"$ '&(

(0 0 EE #^ D/E 0 26 H #^ 3/2H3 . / &DHI3 # .@ /]E

< '(@& " &'$!"&( )$" ")& +$ (#%% ++ #'&,+6 #, $'? #%% ""&& #8 ")& , #(? ")&,&1 '"# &+2&! $--? &%2#*&,&(6 $,&)&,&@? $1")#, L&("# !#'",$!" * ") $'? 5&,+#' 8#, !$,,? '. '"# &9&!1" #' $'? #8 ")& 2&,$" #'+)&,& ' $1")#, L&($'(+1!) #'",$!" +)$-- @& + .'&(@? ")& 5,&+&+ $'(-&,: ' $%& #8 ")& &&" '. $" *) !) ")& +$ (.,&&%&'" #, #'",$!" +)$-- @& %$(&

+/ CD/36 FDE3DG # (0 0 E^ E #D/E

< '(@& " &'$!"&( )$" ")& #' &+ $, + '. 8,#% ")& ++&++%&'")&,&@? $1")#, L&("# @& -&4 &(6 $'(7 #")&, 5,#2&,"? $!C1 ,&(@? ")& +$ (#%% ++ #'&,+ ' 21,+1$'!& #8 ")& 5#*&,+)&,&@? .,$'"&(6 +)$-- @& $'(")& +$%& $,&)&,&@? 4&+"&(' ")& +$ (#%% ++ #'&,+ $'(")& , 1!!&++#,+6 8#, ")& V+&+ $'(51,2#+&+ %&'" #'&(') + !"6 $'("# '# #")&, 51,2#+& *)$"&4&,

(7D/]3 OD 2CC #3DG

< '(@& "&'$!"&( )$"")& #%% ++ #'&,+ +)$-- $" ")& , ,+" &&" '.$22# '" $ -&,: 8#, :&&2 '.")& ##:+ $'(&!#,(+ #8 ")& #%% ++ #'&,+ $'(")& , #%% ""&&+ *) !) ##: #, &!#,(+6 @& '. + .'&(@? ")& 5,&+&+ #8 &$!) ,&+2&!" 4& &&" '.6 #, $'? #2? #, 9",$!" ")&,&8,#% $1")&'" !$"&(@? ")& .'$"1,& #8 ")& -&,:6 +)$-- @& ,&!& 4&($+ 4 (&'!&6 $-- #1,"+ *)$"+#&4&,6 $'? $+& #, $""&, !#'!&,' '.") + !"6 $'(+)$-- @& #2&' "# ")& '+2&!" #' #8 $'? 5&,+#' '"&,&+"&(")&,& '6 * ")#1" 5$?%&'" #8 $'? && #, &*$,(6 $'(")& -&,: +)$--6 *)&' ,&C1 ,&(6 . 4& !&," 8 &(#2 &+ #, 9",$!"+ ")&,&8,#% "# $-- 5&,+#" + ,&C1 , '. ")& +$%&6 12#' 5$?%&'" #8 +1!) ,&$+#'$@-& 1% $+ +)$-- @&]8 9&(@? ")& +$ (#%% ++ #'&,+6 '#" &9!&&('. '&) -- '. 8#, &4&,?),&&)1'(,&(E#,(+

(7D/]# 33 OD H #HD/#DG # 2#6 +/ ED HI #

< '(@& '&$!"&( )$" '# 5&,+#' *)# %$? @ $22# '"&(")& -&,: ")& 9&!1" #' #8 ") + !"6 #, ")& 5$,"'&, 4. GD/] ! '/ $'? 5&,+#' ")& %2-#? #8 1!) -&,: #, 54 5$,"'&,6 +)$-- $!" $+ .&'" #, #- !"#, "" ")& , $- 8 $'? 88&'!& !#%% ""&(* ") ")& % "+ 8#,&+$)-7 $'(")& 4&'" #8 $ #'",$4&'" #' #8 +1!) 5,#4 + #'6 +1!) -&,: +)$-- @& ")&'!&8#,") (+C1$- 8 &(8,#%)#-('. $'? 88 !& E)$"&4&, 1'(&,") + !"6 $'(8,#% $!" '.$+ $ #%% ++ #'&, 1'(&,") + !"

(7D/]2#G /D2EI/D/ # 33 OD E2OD +D/E #

'(@& "81,")&, &'$!"&( )$" " +)$-- '#" @& -$*81- 8#, ")& +$ (#%% ++ #'&,+ "# $22# '" $'? 5&,+#' *)# %$? @& $22# '"&(")& , -&,: ")& 9&!1" #' #8 ") + !"6 #, ")& 5$,"'&, #8 +1!) -&,:6 #, ")& -&,: #A #")&, 5&,+#' ")& Z,4 !& # %2-#? #8 +1!) -&,: #, #8) + 5$,"'&,6 "# @& ")& ,&$+1,&, 8#, ")& 51,2#+&+ #8 ") + !"6 #, "# $22# '" $'? 5&,+#' *)# %$? @& $22# '"&(,&$+1,&,6 #, ")& 5$,"'&, #8 +1!) ,&$+1,&,6 #, ") + !" ")& -&,: #$ ")& 5&,+#' ")& &,4 !& #, %2-#? #8 +1!) ,&$+1,&, #, #8) + 5$,"'&,6 "# @& ")& -&,: "# ")& +$ (#%% ++ #'&,+ 8#, ")& 51,2#+&+ #8 ") + !" $'(8 $'? 5&,+#' +)$-- $!!&2" @#") ")& 88 !&+ #8 -&,: $'(,&$+1,&, 8#, ")& 51,2#+&+ #8 ") + !"6 8 $'? 5&,+#' @& '. ")& 5$,"'&, #8 +1!) -&,:6 #, #")&, 5&,+#' 8 ")& &,4 !& #, %2-#? #8

#8ʿ +1!)ʿ -&, :ʿ #,ʿ #8ʿ) +ʿ 5$,"'&,6ʿ +)$--ʿ $!!&2"ʿ ")&ʿ 88 !&ʿ #8ʿ ,&$+1,&,6ʿ #,ʿ +)$--ʿ $!"ʿ $+ʿ 3&21"?ʿ #8ʿ ")&ʿ ,&$+1,&,6ʿ #,ʿ ʿ $'?ʿ $''&,ʿ #88 ! $"&ʿ 8#,ʿ ")&ʿ ,&$+1,&,6ʿ #,ʿ @& '.ʿ ")&ʿ ,&$+1,&,6ʿ #,ʿ ")&ʿ 5$,"'&,ʿ #8ʿ +1!)ʿ ,&$+1,&,6ʿ #,ʿ ")&ʿ -&, :ʿ #,ʿ #")&,ʿ 5&,+#'ʿ ʿ ")&ʿ &,4 !&ʿ #cʿ %2-#?ʿ #8ʿ +1!)ʿ ,&$+1,&,ʿ #,ʿ #8ʿ) +ʿ 5$,"'&,6ʿ +)$--ʿ $!!&2"ʿ ")&ʿ 88 !&ʿ #8ʿ -&, :ʿ ʿ ")&ʿ 9&!1" #'ʿ #8ʿ ") +ʿ !"6ʿ #,ʿ +)$--ʿ $!"ʿ $+ʿ 3&21"?ʿ #8ʿ +1!)ʿ -&, :6ʿ #,ʿ ʿ $'?ʿ $''&,ʿ #88 ! $"&ʿ 8#,ʿ +1!)ʿ -&, :6ʿ #,ʿ 8ʿ $'?ʿ ,&$+1,&,ʿ +)$--ʿ)#-(ʿ $'?ʿ 5-$!&ʿ #8ʿ 5,#8 ʿ #,ʿ ,1+"ʿ 1'(&,ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ #")&,ʿ ")$'ʿ ")$"ʿ #8ʿ ,&$+1,&,6ʿ &4&,?ʿ 5&,+#'ʿ +#ʿ #88&'('.ʿ +)$--ʿ 8#,ʿ &4&,?ʿ +1!)ʿ 88&'!&ʿ 8#,8&ʿ $'(ʿ 2$?ʿ ")&ʿ 1%6ʿ #8ʿ '&ʿ)1'(,&(ʿ 5#1'(+ʿ "#ʿ $'?ʿ 5&,+#'ʿ *)#ʿ +)$--ʿ +1&ʿ 8#,ʿ ")&ʿ +$%&6ʿ "#ʿ @&ʿ ,&!#4&,&(6ʿ * ")ʿ 81--ʿ 92&'!&+6ʿ ʿ ")&ʿ +$%&ʿ $''&,ʿ $+ʿ $'?ʿ #8ʿ ")&ʿ 5&'$-"&+ʿ @?ʿ ") +ʿ !"ʿ %2#+&(ʿ %$?ʿ @&ʿ +1&(ʿ 8#,ʿ $'(ʿ ,&!#4&,&(

ʿ '(ʿ @&ʿ "ʿ &'$!"&(6ʿ)$"ʿ "ʿ +)$--ʿ $'(ʿ %$?ʿ @&ʿ -$*81-ʿ 8#,ʿ $--ʿ #,2#,$" #'+6ʿ ,1+"&&+6ʿ & ,+ʿ #8ʿ '"$ -6ʿ 1"#,+ʿ #,ʿ 1,$"#,+ʿ 8#,ʿ '8$'"+6ʿ '#,+6ʿ 81, #1+ʿ #,ʿ 8$"1#1+ʿ 5&,+#'+6ʿ $'(ʿ %$,, &(ʿ E#%&'6ʿ $'(ʿ "#ʿ $'(ʿ 8#,ʿ &4&,?ʿ #")&,ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ *)#%+#&4&,6ʿ ")#1.)ʿ 1'(&,ʿ $'?ʿ -&.$-ʿ 3 +$@ - "?ʿ #,ʿ '!$2$! "?ʿ #8ʿ $'?ʿ : '(ʿ *)$"&4&,6ʿ *)#ʿ $,&ʿ #,ʿ +)$--ʿ @&ʿ +& +&(ʿ #,ʿ 2#++&++&(ʿ #8ʿ #,ʿ '"&,&+"&(ʿ ʿ $'?ʿ $'(+ʿ #,ʿ #")&,ʿ &, "$.&+6ʿ *)&")&,ʿ)&-(ʿ ʿ &&ʿ %2-&ʿ #,ʿ 1'(&,ʿ '"$ -6ʿ *) !)ʿ %$?ʿ @&ʿ '&!&++$,?ʿ 8#,ʿ ")&ʿ 51,2#+&+ʿ #8ʿ ") +ʿ !"6ʿ "#ʿ !#'",$!"ʿ $'(ʿ $.,&&ʿ 8#,6ʿ +&--6ʿ $'(ʿ !#'4&?ʿ "#ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ $--ʿ #,ʿ $'?ʿ #8ʿ +1!)ʿ $'(+ʿ #,ʿ #")&,ʿ 5-&, "$.&+6ʿ #,ʿ $'?ʿ 5$,"ʿ ")&,&#8ʿ 8#,ʿ ")&ʿ 51,2#+&+ʿ #8ʿ ") +ʿ !"ʿ $'(ʿ $--ʿ +1!)ʿ #'",$!"+6ʿ .,&&%&'"+6ʿ $-&+6ʿ $'(ʿ #'4&?N ʿ $'!&+ʿ +)$--ʿ @&ʿ 4$-(ʿ $'(ʿ &88&!"1$-ʿ ʿ $*ʿ "#ʿ $--ʿ '"&'"+ʿ $'(ʿ 51,2#+&+6ʿ $'?ʿ $*6ʿ "$"1"&6ʿ V+$.&6ʿ #,ʿ $'?ʿ $""&,ʿ #,ʿ) '.ʿ "#ʿ ")&ʿ !#'",$,?ʿ '#"*ʿ ")+"$'('.ʿ $'(ʿ $--ʿ $'(ʿ &4&,?ʿ +1!)ʿ #,2#,$" #'6ʿ ,1+"&&6ʿ & ,ʿ #8ʿ '"$ -6ʿ 1"#,ʿ #,ʿ 1,$"#,6ʿ %$,, &(ʿ E#%$'6ʿ $'(ʿ #")&,ʿ 5&,+#'ʿ +6ʿ $,&6ʿ $'(ʿ +)$--ʿ @&ʿ)&,&@?ʿ '(&%' 8 &(ʿ 8#,ʿ *)$"ʿ ")&?ʿ +)$--ʿ (#ʿ @?ʿ 4 ,"1&ʿ $'(ʿ ʿ 21,+1$'!&ʿ #8ʿ ") +ʿ !"

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V+& #8 ")& 5&,+#' *)# *#1-(8#, ")& %& @& '.)$4& @&&' &'" "-&(
"# ")& &'"+ $'(5,#8 "+ #8 ")& $'(+ #, &, "$.&+ +# 21,!)$+&(6
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*)#%6 $'? 1% #, 1%+ #8 #'&? +)$-- @& 2$?$@-& $+ $8#,&+$ (+)$--
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+$%&6' %& ' " # ' ' . ' $ ' (' +2&! 8? ' . ' 8#, ' *)$"' $ ' (' 8#, ' *)#+&' V+&' ")&'
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" # ' ' #8' ")&' +$ (' #1,' #8' &++ # ' ' $ ' (' ")&' ' "&,&+"' #8' +1!)' # ' &?6'
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+1!)' 5#++&++ # ' * $+' $' * ,#' . 81- #' &6' $ ' (' ")$"' +#%&' #")&, ' 5&,+# ' ' #, '
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#, ' &, "$.&+' "#' @&' +&""-&(' "#' ")&' - :&' V+&' ' 21,+1$ ' !&' #8' ") +' !"6'
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#1+&' $9' $+' $8#,&+$ (6' #,' $' #2?' ")&,&#86' (#!C1&"&(' $'(' + .'&(' @?' "7. #8 .!"#,'
")&' 5,&+&+' #8' $'?' &&' '.' #8' ")&' +$ (' #%% ++ #'&,+6' +)$--' 8#,") * ")'
@&' (&- 4&,&(' #4&,' "#' ")&' #--&!"#,' #8' ")&' +$ (' ++&++%&'' $+') +' 1-&'
8#,' $--#!$" '.' ")&' +$%&6' *)# +)$--' 8#,") * ")' %$:&' #1"' $' #--' #,' ##:'
#8' ++&++%&''] 5,#4 (&(' $-*$?+6' ")$"' ")&' +$ (' #%% ++ #'&,+' +)$--'
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*) !)' $'' 22&$-' %$?' @&' "$:&'' @?' ")&' 5&,+#'' - $@-&' "#' @&' $++&++&('
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=DH FD/6' .' ' '(' @&' '' &'$!"&(6')$'' ")&' +$ (' #--&!"#,' +)$--' 2,&+&''' ")&' +$ (' +'' #,' ##:' #8' ++&++%&''' "#' $'?' #'&' #8' ")&' $. +",$"&+' #8' +1!)' 1,.)' *)#' +')&,&@?' $1")#, L&('$'(',&C1 ,&('"#' .,$''' +1!)' +1%N %$,?' 3&!,&&"+' $'(' E$,,$'"+' $+' %$?' @&' '&!&++$,?' 8#,' -&4? '.' ")&' +$%&' $'(' *)&,&' $'?' 5&,+#'' +#' ,$"&(' $'(' $++&++&(' $+' $8#,&+$ (' +)$--' ,&81+&' #,' '&.-&!'' "#' 2$?' ")&' $"&' #,' ++&++%&''' !)$,.&(' 12#'') %' 8#,' ")&' 2$!&' #8' &'' 3$?+' '&9'' $8"&,' ")&' +$%&' +)$--' @&' (1&' $'(' (&%$'(&('@?' ")&' #--&!"#,6' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #--&!"#,' "#' $22-?' "#' +1!)' $. +",$"&' 8#,' $' E$,,$''' "#' $'?' #8' ")&' 88 !&,+' #8' ")&' +$ (' 1,.)' "#' &'"&,' ")&' 5,&% +&+' ,&'"&('#,' 2#++&++&(6' $'(' "#' +& L&' $'(' "$:&' 2#++&++ #'' #8' ")&' H##(+' $'(' 88&!"+' #8' ")&' 5&,+#'' $++&++&(' $'(' ,&81+ '.' $'(' '&.-&!" '.' $+' $8#,&+$ (' ' $'(' *) !)' E$,,$''' ")&' +$ (' $. +",$"&' +')&,&@?' $1")#, L&('$'(' ,&C1 ,&(' "#' .,$'"6' 12#'' $' &,N "8 !$"&6' + .'&('@?' ")&' #--&!"#,' #,' 5&,+#'' *)#' %$(&' ")&' 3&%$'(6' #8' +1!)' 3&%$'(')$4 '.' @&&'' %$(&6' $'(' #8' +1!)' 5&,+#'' @& '.' '' $,,&$,' "#' ")&' %#1''' "#' @&' +"$"&(' '' ")&' &," 8 !$"&' $'(' 8' +1!)' 6$"&' #,' ++&++%&''' +)$--' '#'' @&' 2$ (' * ") ''),&&' 3$?+' $8"&,' +1!)' & L1,&' +' %$(&6' "#.&")&,' * ")')$,.&+' $'(' 92&'!&+' ")&,&@?' '!1,,&(6' ")&'' ")&' +$ (' #--&!"#,' +')&,&@?' $1")#, L&('"#' +&--' @?' 21@- !' #126' & ")&,' ' #'' ")&' 5,&% +&+' *)&,&' ")&' +$ (' H##(+' *&,&' +& L&(6' #,' $'?' #")&,' 5-$!&6' +1!)' 5$,'' #8' ")&' +$ (' H##(+' #,' 88&!"+' $+' +)$--' @&' +188 ! &''' "#' 2$?' ")&' +$ (' $"&6' * ")' ")&' 92&'!&+' $""&'('.' +1!)' & L1,&' $'(' $-&6' ,&"1,' '.' ")&' 1,2-1+6' 8' $'?' @&6' "#' ")&' * '&,' $'(' 8$ - '.' ")&' &!#4&,?' #8' $--' #,' $'?' 5$,'' #8' ")&' $"&' #,' ++&++%&''' '' $,,&$,' '' %$''&,' @&8#,&' (&+!, @&(6' ")&' +$ (' #--&!"#,' +)$--' @&' $'(')&' +')&,&@?' $1")#, L&('$'(' &%2#*&,&(' "#' 2,#+&!1"&' 8#,' $'(' #")&,* +&' ,&!#4&, ")&' +$%& $!!#,('. "#' $*'' $'(' ")&' #--&!"#,' +)$--' @&' @#1'(' "# 2,&+&,4&' ")&' E$,,$''+' #8' +1!)' & L1,&+' #,' $-&6' $'('&'"&,' '' $' ##:' "#' @&' :&2'' 8#,' ")$'' 51,2#+&' ")&' $%&+' #8' ")&' 5$," &+' 2,#!&&(&(' $.$ '+"6' ")&' ++&++%&''' (1&6' ")&' 92&'!&' #8' ")&' 5,#!&&('.+6' $'(' ")&' ",1&' 5,#!&&(+' #8' &$!)' $-&6' *) !)' ##:' +)$--' @&' #2&'' "#' ")&' '+2&!" #'' X* ")#1'' $'?' &&[' #8' $--' 5$," &+' '"&,&+"&(' 8#,'),&&' #'")+' $8"&,' ")&' 3$"&' #8' &$!)' $-&' ,&+2&!" 4&-?' $'(' $'' $'?' %&' * ") '' ")$'' 5&, #(' '' +)$--' @&' !#%2&"&''' "#' $'?' 5$,"?' !#'+ (&, '.') %+&-8' $..,&4&(' "#' !#%2-$ '' "#' ")&' +$ (' $. +",$"&' #8' $'?' ") '.' (#'&' 1'>1+"-?' #,' #22,&++ 4&-?' '' ,&.$,(' "#' +1!)' & L1,&' #,' $-&6' +1!)' #%2-$ '"+' @&' '.' %$(&' '' ")&' #,%' #8' 5&" " #'+' +1@+!, @&(' I ' ")&' #%2-$ '&,' $'(' ")&' 3&! + #'' #8' ")&' $. +",$"&' +)$--' @&' 8 '$-6' $'(' '#'' +1@>&!'' "#' &4 &*' '' $'?' #1,'' @?' $'?' #,%' *)$"&4&,

=D7 D.' #H2ED' .'+ FD/36 ' '(' @&' '' &'$!"&(')$'' ")&' +$ (' #%% ++ #'&,+' %$?' 12#'' ")&' 5&" " #'' #8' $'?' !!12 &,' #8' $'?' 5,&% +&+' +1@>&!'' "#' ")&' 5$?%&''' #8' ")&' +$ (' $"&+' #,' ++&++%&'"+6' #'' ")&' H,#1'(' #8' 5#4&,"?' #,' '$@ -"?' "#' 2$?' ")&' +$%&6' "#' ,&% "6' '' *)#-&' #,' '' 2$,"' 5$?N %&''' #8' ")&' +$ (' $"&' #,' ++&++%&''' @?' +1!)' !!12 &,' #,' *'&,' ,&+2&!" 4&-?6' '' +1!)' $''&,' $'(' ")&' +$ (' #%% ++ #'&,+' +)$--' '' ")&' 3 +!,&" #'' ") '.' '>1+"' $'(' ,&$+#'$@-&6' @1'' 12#'' '#' #")&,' !!#1''' *)$"+#&4&,

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,&(" #8ʿ +1!)ʿ $"&+ʿ $'(ʿ +1!)ʿ 5&,+#'+ʿ %$?ʿ "$:&ʿ #2 &+ʿ #8ʿ #,ʿ
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+)$--ʿ @&ʿ ,$"&(ʿ +)$--ʿ @&ʿ (++$" +8 &(ʿ * ")ʿ $'?ʿ !!#1'"+ʿ *) !)ʿ +)$--ʿ
)$4&ʿ @&&'ʿ %$(&ʿ 12ʿ $+ʿ $8#,&+$ (6ʿ #,ʿ * ")ʿ $'?ʿ #8ʿ ")&ʿ "&%+ʿ #,ʿ ," !-&+ʿ
!#'"$ '&(ʿ 'ʿ $'?ʿ +1!)ʿ !!#1'"6ʿ +1!)ʿ 5&,+#'ʿ %$?ʿ $22&$-ʿ $.$ '+" ")&ʿ
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")&ʿ #' &+ʿ ,&!& 4&(ʿ $'(ʿ &92&'(&(ʿ 'ʿ ")&ʿ 9&!1" #'ʿ #8ʿ ")+ʿ !"6ʿ ODʿ O2GDʿ I3ʿ
+)#* '.ʿ 8,#%ʿ *)$" #1,!&+ʿ +1!)ʿ #' &+ʿ)$4&ʿ @&&'ʿ ,&!& 4&(6ʿ $'(ʿ "#ʿ 2#Gʿ G E3/ ^
*)$" 51,2#+&+ʿ ")&ʿ +$%&ʿ)$4&ʿ @&&'ʿ -$ (ʿ #1" $'(ʿ $22- &(ʿ $'(ʿ *) !)ʿ O I3DGʿ 2 O #4ʿ
!!#1'"6ʿ + .'&(ʿ @?ʿ ")&ʿ 5,&+&+ʿ #8ʿ ")&ʿ &&" '.ʿ $'(ʿ -&,:6ʿ +)$--ʿ @&ʿ (O O EE #^
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'ʿ '&ʿ #,ʿ %# ;&ʿ #8ʿ ")&ʿ &*+2$2&,+ʿ 21@- +)&(ʿ #,ʿ ! ,!1-$"&(ʿ 'ʿ +1!)ʿ
1,.)6ʿ $1")&'" !$"&(ʿ @+",$!"+ʿ #8ʿ +1!)ʿ ?&$,-?ʿ !!#1'"+6ʿ $'(ʿ +)$--ʿ
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+1!)ʿ !!#1'"+ʿ $" $--ʿ +&$+#'$@-&ʿ %&+6ʿ * ")#1" 5$?%&'" #8ʿ $'?ʿ &&ʿ
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")&ʿ 5#*&,+ʿ $22- !$@-&ʿ $'(ʿ @&-#'. '.ʿ "#ʿ ")&ʿ 88 !&ʿ #8ʿ #'+"$@-&ʿ @?ʿ
")&ʿ $*ʿ #8ʿ ʿ $'(ʿ +)$--6ʿ @&8#,&ʿ $!" '.6ʿ @&ʿ ,&+2&!" 4&-?ʿ +*#,'ʿ
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)$,@#1,6ʿ #,ʿ &'"&,"$ '6ʿ #,ʿ &'" !&ʿ 8,#%ʿ ")&,ʿ 31"?6ʿ $'?ʿ +1!)ʿ E$"!)Bʿ D#3 H #4ʿ
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#'4 !" #'6ʿ 8#,8&" $'(ʿ 2$?ʿ $ 1%ʿ '#" &9!&&('.ʿ '&ʿ 5#1'(ʿ 8#,ʿ ʿ
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2-#?&(ʿ 1'(&,ʿ ")+ʿ !"6ʿ 'ʿ ")&ʿ 9&!1" # " .8ʿ)+ʿ 31"?6ʿ +)$--ʿ 8#,ʿ &4&,?ʿ 88 !&,+6ʿ
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"&,- ' .6 * ")#1" 5,&>1(!&' "# ")&' 88 !&,'#,'#")&,' 5&,+#'' "# +1&' 8#,' $'(' ,&!#4&,'$' &!#%2&'!&6 3$%$.&+6 #,' 92&'!&+' 8#,' ")&' '>1,?' *) !)')&' %$?' +1+"$ '6 $'(' "#)$4&' ")&' +$%&' $*$,(&(' '' ")&' (1&' #1,+&' #8' $*

+D#2736' #' '..HD/E' 32] #4' 2#6' 3"D/' 0 7I^ 0D#3' 3"2# 3"D /' 272/6

<8-' '(' @&' &'$!"&(6)$" 8'$'?' +1!)' 88 !&,'+)$--' (&%$'(' $'?' %#-1%&'' *)$"+#&4&,' X#")&,'")$'' +1!)' $-$,? #,' --#*$'!&' $+' +)$--' @&' $22# '"&('$'('$--#*&(' @?' ")&' +$ (' #%% ++ #'&,+[' 8#,'#,' #'' $!!#1'' #8'$'?' ") '.' *)$"+#&4&,' ,&-$" 4&' "#) +' %2-#?%&'' #,' 31"?6 #,'+)$--' @&' !#'!&,'&(' #,' '"&,&+"&(' '' $'?' $,.$ '' #,' #'",$!' %$(&' @?' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' 51,2#+&+' #8' ") +' !"6 &4&,? +1!)' 5&,+#'' +#' #88&'('.' +)$--' @&' '!$2$@-&' #8' $8"&,*$,(+' +&,4 '.' #,' @& '.' &%2-#?&(' 1'(&,' ")&' +$ (' #%% ++ #'&,+6 $'(' +)$--' 8#,8& '' $'(' 2$?' $' 1%' '#" &9!&&('.' *&'"?' 5#1'(+' 8#,' &4&,? +1!)' 88&'!&6 "#.&")&,' * ")' 81--' 92&'!&+

B24 E3/23DE' DOC ZD/DG' 3 ' EIECD#G' @23H" OD#

< ' '(' @&' '' &'$!"&(6)$'' '' +)$--' @&' '' ")&' 5#*&,' #8' $'?' $. +",$"&' * ") '' $'?' +1!)' 1,.)6 #'' #%2-$ '' %$(&' "#) %6 "# +1+2&'('$'?' #8' ")&' +$ (' E$"!)%&'' 8#,' &.-&!'' #8' 31"?6 (&!-$, '.' ")$'' $'?' +1!)' 1+2&'+ #'' +)$--' @&' '" %$"&(' "# ")&' '&9'' &&" '.A' #8' ")&' #%% ++ #'&,+6 *)# +)$--6)$4&' 5#*&,' "# (# '' ")&' $""&,' $+' "# ")&%' +)$--' $22&$,' 2,#2&,

+D/E #E' # (IE3 G6' 3 ' OD' 32]D# OD. /D' 2' B24 E3/23D

' '(' @&' '' &'$!"&(')$'' $--' 5&,+#'+' "$:&'' '"#' 1+"#(?' * ") '' $'?' +1!)' 1,.)' $+' +)$--')$4&' $(#2"&(' ")&' 5,#4 + #'+' #8' ") +' !'' #,' $'?' 5$,'' ")&,&#86 @?' ")&' 88 !&,+' #8' 5#- !&6 +)$--' @&' "$:&'' @&8#,&' #'&' #8' ")&' +$ (' $. +",$"&+' #8' +1!)' 1,.)' $+' +##'' $+' %$?' @&6 $'(' '' '#' $+&' -$"&,' ")$'' '' ")&' #1,+&' #8' ")&' 8 ,+' -$*81-' 3$?' $8"&,' ")&?' +)$--' @&' +#' "$:&'' '"#' 1+"#(?6 "#' @&' 2,#!&&(&(' * ")' $+' ")&' +$ (' $. +",$"&' +)$--' (,&!"

24/2#3E' H' 3 ' OD' 2CC/D^ "D#GDG

' '(' @&' '' &'$!"&(')$'' ")&' 88 !&,+' $8#,&+$ (' %$?U$22,&N)&'('$'('@, '.' @&8#,&' $'?' +1!)' $. +",$"&' $--' <$.,$''+' $'(' !#%%#'' &..$,+' 8#1'(' * ") '' $'?' +1!)' 1,.)6 8#,' 9$% '$" #'6 *)# +)$--' @&' +&''"# $'?' 5$, +)' '' *)#-&' #,' '' 2$,' * ") '' ")&' R1, +(!" #'' #8' ")&' #1,'' '' *) !)' ")&?' +)$--')$4&' $!C1 ,&(' $' -&.$-' &+ (&'!&6 #,' #")&,* +&' +)$--' @&' #,(&,&(' "# -&$4&' ")&' &,, "#,?' #8' ")&' R1, +(!" #'' '' *) !)' ")&?' +)$--')$4&' @&&'' $22,&)&'(&(' $'(' 8' $8"&,' ")&' 92 N ,$" #'' #8' #,"?B& .)'' #1,+' ")&?' +)$--' @&' $.$ ''8#1'(' (-&' #,' @&.. '.' * ") '' +1!)' 1,.)6 ")&?' %$?' @&' $22,&)&'(&(' $'(' !$,, &(' @&8#,&' ")&' $. +",$"&6 *)# %$?' !#%% '' ")&%6 $+' (+#,(&-?' 5&,+#'+6 "# 5, +#'' #,' , (&*&--' 8#,'$'?' 2$!&' '#'' &9!&&('.') ,"?' 3$?+

?DDCD/E' .' CC7 #4' > IEDE' 3 ' .#G' DHI^ /36

' '(' @&' '' &'$!"&(')$'' #'' $ #%2-$ '' @?' ")&' 5,#!1N ,$"#,' +!$-6 $'?' +1!)' $. +",$"&' %$?' $'(' +')&,&@?' $1")#, L&(' $'(' &%2#*&,&(' "# $22# '' $--' 5&,+#'+' !#'4 !"&(' #8' :&&2 '.' #1+&+' ,&+#,"&(' "# @?' , #"#1+' #,' (+#,(&,-?' 5&#2-&6 #,' *)# +)$--' +122-?' 2, "1#1+' C1#,+' "# $'?' 5&,+#'' 1'(&,' ")&' .&' #8' #1,"&&'' &$,+6 * ") '' $'?' +1!)' 1,.)6 "# 8 '(' &!1, "?6 #8' '#'' -&++' ")$'' &'' 5#1'(+' $'(' '#'' &9!&&('.' 8"? 5#1'(+6 8#,' ")&,' .##(' &)$4 #1,'8#,' $'?' 5&, #(' 3#' &9!&&('.' *&-4&' #'")+6 $'(' #'' 8$ -1,&' "# (# +#A "# (&2, 4&' ")&%' #8' ")&' &," 8 !$"&+' 8#,' +&-- '.' -&' #,' 2 , "1#1+' C1#,+' $'(' +1!)' #,8& "1,&' +)$--' 8#,")* ")' @&' ,&2#,"&(' "# ")&' #--&!"#,' #8' 9! +&' * ") '' ")&' 3 +", !"

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' '(' @&' '' &'$!"&(6')$"' $--' ,#:&,+' $'(' 3&$-&,+' '' /]D/E' 2#G'
&!#'(B)$'(' H##(+6' #")&,' ")$'' - !&'+&(' 5$*'@,#:&,+6' ,&+ (&''
* ") ''$'?' +1!)' 1,.)6' +)$--' @&' @#1'(' 1'(&,' $' 5&'$-"?' 8#,' $ -1,&' "2#G' GE'
#8' *&'"?') -- '.+' "#' ,&. +"&,' ")&,' $%&+' $'(' 5-$!&' #8' &+ (&'!&' 3 ' /D4 E3D/'
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)$'(' ," !-&+6' $+' *&--' $+' $--' 5$*'@,#:&,+6' +)$--' $"' $--' ,&$+#'$@-&'
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")&' '(+' #8' 21@- !' R1+" !&6' #,' ,&+"#,&(' @?' ,(&,' #8' $' $. +",$"&' '
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8 ,+'' (1-?' - !&'+&(' $+' $8#,&+$ (6' #,' *)#' +)$--' @&' 8#1'(' .1 -"?' #8'
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+)$-' :&&2 $" $'? %& " $'? 5-$!& %#,& ")$'" &'" 5#1'(+ E& .)"
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")& #,%+ 1+1$- +1!) #1,"+6 $.$ '+" ")& 5,#2, &"#, #, 5,#2, &"#,+
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!$+& +1!) @+",1!" #'+ +)$-- '#" @& ,&%#4&(* ") 9 #'")+
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.'H #FD# D#3
HHDEE H2## 3
OD O32 #DG
D&HDC3 O6
EIH" 32 /E
H'3"D# 3 '
OD C2/3 2776
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'(@& " &'$!"&( )$" $-- $+&+ #8 1-('.+ $-,&$(?
&,&!"&(#' ")& (&+ #8 ")& ##" 5$4&%&'"+ #8 $'? #8 ")& ",&&"+6
C1$,&+6 $'&+6 #$(+6 #, 5$++$.&+ #8 $'? +1!) 1,.)6 *) !) !$''#"
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+1!) 5&,+#' $+ %$? @& '$%&(@? ")& $. +",$"&6 3&$'' #8 H1 -(6 #,
)&, 886 $'(")$" "# +1!) 9"&'" $'(+1!) E$? $+ "#) % %$?
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!!&++6 "# $@$"& ")& 3$'.&, #, '!#'4&' &'!& $, + '. 8,#% +1!)
"$,+ #, 5,#>&!" #'+ $'(!$+& #8 $ -1,& "# &9&!1"& ")& 2&,$N
"#'+ #,($ '&(@? +1!) $. +",$"&6 3&$'' #8 H1 -(6 #,)&, 886 * ")
")& %& $--#*&(6 ")& 5&'$-"&+ @&8#,& +2&! 8&(8#, $ $ -1,& "#
%2-&%&'" ")& ,(&,+ #8 +1!) $. +",$"&6 3&$'' #8 H1 -(6 #,)&, 88
")& $+& #8 $ "#"$- &%#4$-6 +)$-- ") + $+& $-+# @& '!1,,&(6
$'(@& ,&!#4&,$@-& %$''&, $8#,&+$ ($'(!$+& ")& ,(&, +)$--
'#" @& %2-&%&'"&(* ") 9 #'")+ $8"&, ")& %& $--#*&(8#,
,&%#4 '. ")& +$%&)$+ &92 ,&(6 ")&' +1!) $. +",$"&6 3&$'' #8 H1 -(6
#, -&, 88 %$? $'(+)&,&@? ,&C1 ,&("# ++1&) + E$,,$'" 8#, ,&B
%#4 '. ")& +$%& " * ,
'(

ʼ '(ʼ @&ʼ "ʼ &'$!"&(6ʼ)$"ʼ "ʼ $--ʼ +1!)ʼ $+&+ʼ #8ʼ ")&ʼ &%#4$-ʼ (OCD#E2ʼ
"ʼ *)#-&ʼ #,ʼ "ʼ 2$,"ʼ X#,ʼ ")&ʼ -"&,$" #'[ʼ #8ʼ +1!)ʼ "$,+6ʼ 5,#>&!" #'+6ʼ #5I/6
'!,#$!)%&'"+6ʼ #,ʼ #")&,ʼ 1 -('.+ʼ #,ʼ) '.+6ʼ "ʼ !$+&ʼ ")&ʼ 5,#2, &"#,ʼ
#8ʼ ")&ʼ #1+&ʼ #,ʼ #")&,ʼ 1 -('.ʼ "#ʼ *) !)ʼ ")&ʼ +$%&ʼ @&-#'.+ʼ X+)$--ʼ @&ʼ
")&,&@?ʼ '>1,&(6ʼ)&ʼ #,ʼ ")&?ʼ +)$--ʼ @&ʼ &'" "-&(ʼ "#ʼ $ʼ #%2&'+$" #'ʼ 8,#%ʼ
")&ʼ +$ (ʼ #%% ++ #'&,+ʼ 8#,ʼ +1!)ʼ '>1,?6ʼ $!!#,('.ʼ $+ʼ ")&ʼ %#1'"ʼ
")&,&#8ʼ +)$--ʼ @&ʼ $.,&&(ʼ 12#'ʼ @&"*&&'ʼ) %ʼ $'(ʼ ")&%6ʼ #,ʼ +)$--ʼ @&ʼ
$+!&,"$ '&(ʼ @?ʼ +1!)ʼ $. +",$"&6ʼ 3&$'ʼ #8ʼ H1 -(6ʼ #,ʼ)&, 8ʼ @?ʼ %&$'+ʼ
#8ʼ $ʼ &% "ʼ "#ʼ 5&,+#'+ʼ #8ʼ : --6ʼ $'(ʼ $ʼ &2#,"ʼ #'ʼ $")ʼ @?ʼ ")&%6ʼ #,ʼ
#")&, * +&ʼ $+ʼ +1!)ʼ $. +",$"&6ʼ 3&$'ʼ #8ʼ H1 -(6ʼ #,ʼ)&, 8ʼ +)$--ʼ (;&!"6ʼ
"ʼ !$+&ʼ ")&ʼ 5$,"&+ʼ +)$--ʼ !#'+&'"ʼ "#ʼ ")&ʼ %#1'"ʼ @& '.ʼ +#ʼ $+!&,"$ '&(6ʼ
#,ʼ @?ʼ $ R1,?6ʼ "#ʼ @&ʼ +1%%#'&(ʼ "ʼ ")&ʼ +$%&ʼ $''&,ʼ $+ʼ R1, &+ʼ "ʼ
ʼ$,&ʼ +1%%#'&(

ʼ ʼ '(ʼ @&ʼ "ʼ &'$!"&(ʼ)$"ʼ ")&ʼ 5,#2, &"#,6ʼ 8&ʼ &'"&,6ʼ #,ʼ =I # IEʼ
$'?ʼ #")&,ʼ 5&,+#'ʼ &'" "-&(ʼ "#ʼ ")&ʼ &'"+ʼ #8ʼ $'?ʼ 5,&% +&+ʼ *) !)ʼ +)$--ʼ
@&ʼ '+&!1,&6ʼ ,1 '#1+6ʼ #,ʼ #")&,* +&ʼ ($'.&,#1+ʼ "#ʼ 5$++&'.&,+6ʼ +)$--ʼ @&ʼ G Z#!ʼ
#@- .&(ʼ $'(ʼ)&ʼ +ʼ)&,&@?ʼ ,&C1 ,&(ʼ 8#,") * ")6ʼ #'ʼ ")&ʼ &C1 + " #'ʼ #8ʼ
+1!)ʼ $. +",$"&6ʼ 3&$'ʼ #8ʼ H1 -(6ʼ #,ʼ)&, 886ʼ #'ʼ ")&ʼ 22- !$" #'ʼ "#ʼ) %ʼ
#8ʼ ")&ʼ 5,#!1,$"#,ʼ +!$-6ʼ)$4 '.ʼ ")&ʼ #'+&'"ʼ #8ʼ ")&ʼ #%% ++ #'&,+ʼ
")&,&"#6ʼ * ") "ʼ $ʼ ,&$+#'$@-&ʼ %&ʼ "#ʼ @&ʼ - % "&(ʼ "ʼ +1!)ʼ &C1 + " #'6ʼ
"#ʼ ,&2$ ʼ $'(ʼ +&!1,&ʼ #,ʼ "#ʼ 21--ʼ (#* 'ʼ $'(ʼ ,&%#4&ʼ +1!)ʼ 5,&% +&+ʼ
$'(ʼ "ʼ (&8$1-"ʼ ")&,&#86ʼ +1!)ʼ $. +",$"&6ʼ 3&$'ʼ #8ʼ H1 -(6ʼ #,ʼ)&, 8ʼ +ʼ
)&,&@?ʼ $1")#, L&(ʼ $'(ʼ &%2#*&,&(6ʼ #'ʼ ")&ʼ &2#,"ʼ #8ʼ E#,:%&'6ʼ "#ʼ
,&2$ ʼ $'(ʼ +&!1,&ʼ #,ʼ 21--ʼ (#* 'ʼ $'(ʼ ,&%#4&ʼ +1!)ʼ 5,&% +&+ʼ $'(ʼ
&4&,?ʼ +1!)ʼ 5&,+#'ʼ $8#,&+$ (ʼ '&.-&!" '.ʼ #,ʼ ,&81+ '.ʼ "#ʼ !#%2-?ʼ * ")ʼ
+1!)ʼ &C1 + " #'ʼ +)$--ʼ 8#,ʼ &4&,?ʼ 3$?ʼ 8#,8& "ʼ $'(ʼ 2$?ʼ $'?ʼ 1,$ '#"ʼ
&9!&&('.ʼ 4&ʼ 5#1'(+ʼ "&,- '.6ʼ @&+ (&+ʼ (&8,$? '.ʼ ")&ʼ *)#-&ʼ 92&'!&ʼ
'!1,,&(ʼ 'ʼ ,&2$, '.ʼ $'(ʼ +&!1, '.ʼ #,ʼ 21-- '.ʼ (#* 'ʼ $'(ʼ ,&%#4 '.ʼ
+1!)ʼ 5,&% +&+

<ʼ '(ʼ @&ʼ "ʼ &'$!"&(ʼ)$"ʼ "ʼ $--ʼ +1!)ʼ $+&+ʼ #8ʼ ")&ʼ &%#4$-ʼ &CD#HDEʼ 3ʼ
"ʼ *)#-&ʼ #,ʼ "ʼ 2$,"6ʼ #,ʼ ")&ʼ -"&,$" #'6ʼ #8ʼ +1!)ʼ @+",1!" #'+6ʼ ")&ʼ @&2$(ʼ O6ʼ
5,#2, &"#,ʼ +)$--ʼ @&ʼ ,&- &4&(ʼ @?ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+ʼ #8ʼ $--ʼ 92&'!&ʼ
*) !)ʼ %$?ʼ @&ʼ '!1,,&(ʼ "ʼ %$: '.ʼ 22- !$" #'ʼ "#ʼ +1!)ʼ $. +",$"&6
3&$'ʼ #8ʼ H1 -(6ʼ #,ʼ)&, 8ʼ $+ʼ $8#,&+$ (6ʼ "ʼ %2-&%&'" '.ʼ)+ʼ ,(&,+6ʼ #,ʼ
"ʼ $'?ʼ #")&,ʼ E$?ʼ "ʼ ,&-$" #'ʼ "#ʼ ")&ʼ 5,&% +&+6ʼ &9!&2"ʼ #'-?ʼ +1!)ʼ 9N
2&'!&+ʼ $+ʼ %$?ʼ @&ʼ '!1,,&(ʼ @?ʼ #,ʼ "),#1.)ʼ ")&ʼ %2,#2&,ʼ 22#+ " #'ʼ #8ʼ
+1!)ʼ 5,#2, &"#,ʼ "#ʼ ")&ʼ 22- !$" #'ʼ @&ʼ %$(&ʼ $+ʼ $8#,&+$ (6ʼ #,ʼ $'?ʼ
#8ʼ ")&ʼ 5,#!&&('.+ʼ 1'(&,ʼ ")&ʼ +$%&6ʼ #,ʼ @?ʼ #,ʼ "),#1.)ʼ) +ʼ %2,#2&,ʼ
&81+$-ʼ #,ʼ 3&-$?ʼ "#ʼ %2-&%&'"ʼ ")&ʼ ,(&,+ʼ #8ʼ +1!)ʼ $. +",$"&6ʼ 3&$'ʼ
#8ʼ H1 -(6ʼ #,ʼ)&, 886ʼ $--ʼ *) !)ʼ 92&'!&+ʼ +)$--ʼ @&ʼ 2$(ʼ @?ʼ +1!)ʼ 5,#N
2, &"#,ʼ $'(ʼ $!!#,('.-?ʼ +1!)ʼ $. +",$"&6ʼ 3&$'ʼ #8ʼ H1 -(6ʼ #,ʼ)&, 8ʼ
%$?ʼ $'(ʼ +)$--ʼ .4&ʼ 3&!,&&ʼ $!!#,('.ʼ "#ʼ ")&ʼ 1+1$-ʼ #,%ʼ $'(ʼ 5,$!" !&ʼ
#8ʼ) +ʼ #1,"6ʼ #,(&, '.ʼ +1!)ʼ 5,#2, &"#,ʼ "#ʼ %$:&ʼ 5$?%&'"ʼ #8ʼ +1!)ʼ
92&'!&ʼ $+ʼ ")&ʼ %#1'"ʼ ")&,&#8ʼ +)$--ʼ @&ʼ $+!&,"$ '&(ʼ @?ʼ ")&%

<ʼ '(ʼ @&ʼ "ʼ &'$!"&(ʼ)$"ʼ "ʼ $--ʼ ",&&"+ʼ #,ʼ #")&,ʼ 5-$!&+ʼ * ")ʼ "ʼ + ZD/Eʼ 4 FD#ʼ
$'?ʼ 1,.)ʼ *) !)ʼ +)$--ʼ)$4&ʼ $(#2"&(ʼ ")&ʼ 5,#4 + #'+ʼ #8ʼ ")ʼ +ʼ !"6ʼ *)&,&ʼ 3ʼ '+/ C/ D3 /Eʼ
#%%#' &*&,+ʼ $,&ʼ '#*ʼ #,ʼ %$?ʼ)&,&$8"&,ʼ @&ʼ !#'+",1!"&(6ʼ "ʼ +)$--ʼ @&ʼ .ʼA 23Eʼ /ʼ
-$*81-ʼ "#ʼ ")&ʼ 5,#2, &"#,ʼ #8ʼ +&2$,$"&ʼ -##,+ʼ #,ʼ -$"+6ʼ 1'(&,ʼ ")&ʼ 3 ,&!N A7 /Eʼ 3ʼ
"#'ʼ #8ʼ ")&ʼ #%% ++ #'&,+6ʼ "#ʼ &,&!"ʼ #'ʼ +$ (ʼ #,ʼ 8#1-ʼ E$"&,ʼ 5 2&ʼ D/DH3ʼ. I7ʼ /ʼ
$-#'.ʼ ")&ʼ @$!:ʼ E$--ʼ #8ʼ ")&ʼ &'%&'"6ʼ #'ʼ ")&ʼ 1"+ (&6ʼ "#ʼ !#%%1'N Z2E3Dʼ @23D/ʼ
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VU' ' ' L B' ' (2C' T

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*)&,&' ")&,&' +' +1!)' 3,$ '6' $'(' * ")' 5#*&,' "#' %$:&' +1!)' 3,$ '' 8'
")&,&' +' '#"' #'&' $-,&$(?6' $'(' $8"&,*$,(+' "#' :&&2' ")&' +$%&' '' .##('
$'(' +18 ! !2"' &2$,' 2,#4 (&(' ")$"' ")&' 92&'!&' $'(' 3$%$.&' #!!$N
+#'&(' @?' ")&' &,&!" '.' $'(' !#'+",1!" '.' +1!)' 5 2&6' #%%1' !$"#'6'
$'(' 3,$ '6' $'(' ")&' 92&'!&' #8' :&&2 '.' ")&' +$%&' !-&$'' $'(' '' .##('
&2$,6' +)$--' @&' (&8,$?&(' @?' ")&' 5,#2, &"#,+' #8' ")&' -$"+' #,' -##,+'
%$: '.' 1+&' #8' ")&' +$%&6' '' 2,#2#," #'' "#' ")& ,' ,&+2&!" 4&' &'"+6' "#'
@&' $+!&,"$ '&(' @4' ")&' ##:+' #8' ++&++%&'' $8#,&+$ (

+ ZD/' 3 ' (O##EE #' D/E' 3 ' H #^ E3/ IH3' DZD/E' 2#G' * /2 #E

< ' '(' @&' "' &'$!"&(')$"' ")&' +$ (' #%%++#'&,+' +)$--')$4&'
5#*&,' "#' !#'+",1!"' 2,#2&,' $ '' 3,$ '+' #,' #%%#'' &*&,+' '' $--'
5-$!&+' #,' "1$"#'+' '' $'?' ",&&"6' C1$,&6' $'&6' 21@- !' 5$++$.&' #,'
5-$!&' *)&,&' ")&?' %$?' !#'+ (&,' ")&' +$%&' "#' @&' '&!&++$,?6' * ")' 5#*&,'
8,#%' %&' "#' %&' "#' (&&2&'' $'(' &'-$,.&' ")&' +$%&6' $'(' $-+#' "#' $#'B'
(1!"' 3,$ '+' 8#,' -&$('.' $ '' #,' #")&,' E$"&,' #,' #-' '"#' +1!)' $ ''
3,$ '+'] 5,#4 (&(' '&4&,")&-&++6')$"' "' +)$--' '#"' @&' -$*81-' 8#,' ")&' +$ ('
#%%++#'&,+' "#' !1"' #886' (4&,"6' #,' $-"&,' $'?' ",&$%' #,' E$"&,!#1,+&6'
#,' (% ' +)' ")&' $'! &'' $'(' $!!1+"#%&(' T1$'' "?' #8' $ '' #,' #")&,'
E$"&,' #,' #- 8-#* '.' ")&,& '' $"' ")&' 5&, #(' $"' *) !)' ")&' 5,#4 + #'+'
#8' ") +' !' %$?' @&' $(#2"&(' '' $'?' +1!)' 1,.)6' * ")#1"' ")&' #'+&''
'' E, " '.' #8' ")&' 5&,+#'+' +&4&,$--?' '"&,&+"&(' '' +1!)' E$"&,6' $'(' #8'
")&' ,&+2&!" 4&' *'&,+' $'(' !!12 &,+' #8' ")&' $'(' #'' &")&,' (&' #8'
+1!)' ",&$%' #,' E$"&,!#1,+&' "),#1.)#1"' ")& ,' ,&+2&!" 4&' 5,#2&," &+

(O O EE #' &,+"?>,#4 (&' /D' #4 #DE'

< ' '(' @&' "' &'$!"&(')$"' ")&' +$ (' #%%++#'&,+' %$?' 2,#B'
4 (&' '&' #,' %#,&' ,&' '. '&+' $'(' ,&' #!:+' #,' 5-1.+6' $+' ")&' +$ ('
#%%++#'&,+' %$?' >1(.&' '&!&++$,?6' $'(' $-+#' 8' 5&,+#'+' 8#,' *#,: '.'
")&' +$%&6' $'(' $22-?' +#' %1!)' #8' ")&' ++&++%&'"+')&,&@?' $1")#, L&('
"#' @&' -&4 &(' $+' %$?' @&' '&!&++$,?' 8#,' +1!)' 51,2#+&

.' (" O#D6E' H' 32]D' . /D'

< ' '(' @&' "' &'$!"&(')$"' 8' $'?')%'&?' #,' 1''&-' 8#,'
!#'4&? '.' %#:&' * ") '' $'?' +1!)' 1,.)' @&' +&' #' 8 ,&6' #,' @&' +188&,&(
!!12 &,' #8' ")&' 5,&% +&+' "#'

2E 2=DZ2/G' 3 'A /DOD#'

*) !)' +1!)')%'&?' #,' 1''&-' @&-#'.+' +)$--' @&' -$@-&' '' $' 5&'$-"?'
#8' &'') -- '.+' $'(' +1!)' !!12 &,' +)$--' %#,&#4&,' @&' -$@-&' ''
+1!)' 81,")&,' 1%6' '#' &9!&&('.' &'') -- '.+6' $+' $'?' $. +",$"&' #8'
+1!)' 1,.)' +)$--' $*$,(' "#' @&' 2$ (' X '' +1!)' 5,#2#," #'+6' 8' ")&,&' @&'
%#,&' -$%$'"+' ")$'' '&6' $+' ")&' +$ (' $. +",$"&' +)$--' (,&!"6["#' ")&'
,&%&'' #,' #")&,' 5&,+#'+' @?' *)#%' +1!)' ,&' +' &9" '.1 +)&(6' #,' "#'
")&' ,&%$'' *)#' +)$--' +##'&+' 2,#!&&(' "#' ")&' 5-$!&' "#' $++ +' ''
&9" '.1 +) '.' +1!)' ,&6' #,' *)#' +)$--' 8 ,+' ,&2#,' +1!)' - ,&' $"' ")&'
5#- !&' 88 !&

(O O EE #' D/E' O26' D/DH3' 3DD762/GE'

' '(' @&' "' &'$!"&(6')$"' ")&' +$ (' #%%++#'&,+' %$?'
&,&!"' $'(' %$ '"$ '' "&&-?$,(+' #,' #")&,' E& .) '.' '. '&+' 12#'' #,'
$(>$!&'' "#' ")&' (88&,&'' #$(+' -&$('.' "#' $'?' +1!)' 1,.)6' #,' $"'
!#'4&' &'' 5-$!&+' * ") '' ")&' +$%&6' 8#,' ")&' 51,2#+&' #8' *&.) '.'
+1!)' ," !-&+' $+6%$?' @&' @,#1.)' * ") '' +1!)' 1,.)6' $'(' %$?' &'$!"'
+1!)' 1-&+6' &.1-$" #'+6' $'(' ?&' $*+' 8#,' ,&.1-$" '.' ")&' *&.) '.'
")&,&#86' $+' ")&?' +)$--' 8,#%' %&' "#' %&' ") ':' '&!&++$,?' $'('
&92&(&'"6' $'(' %$?' &'8#,!&' @&(&'!&' ")&,&"#' 1'(&,' +1!)' 5&'$-"?'
$'(' #,8& "1,&' $+' ")&?' +)$--' $88 96' '#' &9!&&('.' *&'"?') -- '.+

(' '(

ʼ '(ʼ @&ʼ "ʼ &'$!"&(6ʼ)$"ʼ '#ʼ "#'&+6ʼ E##(6ʼ %&6ʼ $'(6ʼ #,ʼ 3 #DE! %&6
#")&,ʼ ," !-&ʼ +)$--ʼ @&ʼ (&2#+ "&(6ʼ #,ʼ $'?ʼ)&(+ʼ 8#,ʼ E#,:%&'ʼ #,ʼ #")&,ʼ
,&!" #'ʼ #,ʼ '!-#+1,&ʼ @&ʼ 2-$!&(ʼ 12#'ʼ #,ʼ 2&' '.ʼ %$(&ʼ 'ʼ $'?ʼ $'(- .)"&(f
#8ʼ ")&ʼ ",&&"+ʼ #,ʼ #")&,ʼ 21@- !ʼ 5-$!&+ʼ * ") 'ʼ $'?ʼ +1X)ʼ 1,.)+6ʼ
* ")#1"ʼ ")&ʼ 1")#, "?ʼ #8ʼ ")&ʼ $. +",$"&+ʼ 8 ,+"ʼ)$(ʼ $'(ʼ #@"$ '&(ʼ ʼ $'(ʼ
")&ʼ 5&,+#'+ʼ %$: '.ʼ #,ʼ !$1+ '.ʼ +1!)ʼ "#ʼ @&ʼ %$(&ʼ +)$--ʼ $"ʼ ")&,ʼ #*'ʼ
92&'!&ʼ !$1+&ʼ $ʼ +188 ! &'"ʼ $-ʼ #,ʼ &'!&6ʼ $'(ʼ X*)&,&ʼ '&!&++$,?[ʼ $ʼ
##"2$")6ʼ +188 ! &'"-? 8&'!&(6ʼ "#ʼ @&ʼ 21"ʼ ,#1'(ʼ ")&ʼ +$%&6ʼ $'(ʼ +)$--ʼ
$-+#ʼ !$1+&ʼ $ʼ +188 ! &'"ʼ 1%@&,ʼ #8ʼ $%2+ʼ #,ʼ .)"+ʼ "#ʼ @&ʼ $88 9&(ʼ
$"ʼ #,ʼ '&$,ʼ ")&ʼ +$%&6ʼ "#ʼ @&ʼ :&2"ʼ @1,' '.ʼ &4&,?ʼ .)"6ʼ 8,#%ʼ 1'N
+&"" '.ʼ "#ʼ 1', + '.6ʼ ")$"ʼ +1!)ʼ 3&2#+ "$" #'+6ʼ ,&!" #'+6ʼ $'(ʼ '!-#N
+1,&+ʼ +)$--ʼ ,&%$ '6ʼ #,ʼ +1!)ʼ #-Z+ʼ #,ʼ 2&' '.+ʼ +)$--ʼ @&ʼ 1'8 --&(ʼ 126ʼ
$--ʼ "#ʼ ")&ʼ $" +8$!" #'ʼ #8ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+ʼ ʼ 'ʼ 8$ -1,&ʼ *)&,&#8ʼ
+1!)ʼ $. +",$"&ʼ %$?6ʼ #'ʼ #%2-$ '"6ʼ (&!&,'ʼ ")&ʼ 5&,+#'+ʼ +#ʼ #88&'('.ʼ
"#ʼ 2$?ʼ $'?ʼ 1%ʼ '#"ʼ &9!&&('.ʼ *#ʼ 5#1'(+ʼ 8#,ʼ &$!)ʼ 3$?ʼ #,ʼ .)"ʼ
")&ʼ +$%&ʼ %$?ʼ ,&%$ 'ʼ 1'(#'&6ʼ $'(ʼ %$?ʼ $-+#ʼ #,(&,ʼ +1!)ʼ 3&2#+ "$" #'+6
,&!" #'+6ʼ '!-#+1,&+6ʼ #1'($" #'+6ʼ #,ʼ #-&+ʼ "#ʼ @&ʼ 8&'!&(6ʼ $'(ʼ
$%2+ʼ #,ʼ .)"+ʼ "#ʼ @&ʼ $88 9&(ʼ $'(ʼ :&2"ʼ @1,' '.6ʼ $"ʼ ")&ʼ 92&'!&ʼ #8ʼ
")&ʼ 5&,+#'+ʼ &%2-#?&(ʼ #,ʼ !#'!&,'&(ʼ ")&,&'6ʼ ,&+&,4 '.ʼ $-*$?+ʼ "#ʼ $'?ʼ
5&,+#'+ʼ *)#ʼ %$?ʼ +188&,ʼ '>1,?ʼ @?ʼ +1!)ʼ 2&,$" #'+6ʼ *)&")&,ʼ ")&ʼ
5,#4 + #'+ʼ $@#4&ʼ *, ""&'ʼ @&ʼ #@+&,4&(ʼ #,ʼ '#"6ʼ "#ʼ 2,#+&!1"&ʼ 8#,ʼ
&2$,$" #'ʼ $'(ʼ 3$%$.&+ʼ $!!#,('.ʼ "#ʼ $*

-ʼ '(ʼ @&ʼ "ʼ &'$!"&(ʼ)$"ʼ *)&'ʼ "%$?ʼ @&!#%&ʼ '&!&++$,?ʼ "#ʼ > IEDE I#GD/ʼ =DC2 /ʼ 3 ʼ OD .D#HDG
2&,8#,%ʼ $'?ʼ E#,:ʼ 12#'ʼ #1+&+ʼ #,ʼ &'&%&'"+ʼ * ") 'ʼ ")&ʼ % "+ʼ
$8#,&+$ (6ʼ *)&,&@?ʼ +:ʼ %$?ʼ $, +&ʼ #8ʼ $'?ʼ ," !-&+ʼ #,ʼ $"&, $-+ʼ
8$-- '.ʼ 12#'ʼ ")&ʼ ",&&"+6ʼ #,ʼ #8ʼ #")&,ʼ '>1,?ʼ "#ʼ ")&ʼ 51@- !6ʼ &4&,?ʼ
5&,+#'ʼ !$,,? '.ʼ #'ʼ #,ʼ !$1+ '.ʼ "#ʼ @&ʼ !$,, &(ʼ #'ʼ +1!)ʼ E#,:+ʼ
+)$--ʼ $"ʼ) +ʼ 92&'!&ʼ +188 ! &'"-? 8&'!&ʼ ,#1'(ʼ ")&ʼ 5$,"+ʼ #8ʼ ")&ʼ +$ (ʼ
##"ʼ 5$4&%&'"ʼ #22#+ "&ʼ "#ʼ +1!)ʼ #1+&+6ʼ $'(ʼ +)$--ʼ 12)#-(ʼ $'(ʼ :&&2ʼ
'ʼ 2,#2&,ʼ &2$ʼ ")&ʼ &'!&+ʼ $8#,&+$ (6ʼ (1, '.ʼ ")&ʼ *)#-&ʼ %&ʼ
")&ʼ +$ (ʼ E#,:+ʼ $,&ʼ !$,,? '.ʼ #'6ʼ "#ʼ 2,&4&'"ʼ 5$++&'.&,+ʼ 8,#%ʼ *$-: '.ʼ
$-#'.ʼ ")#+&ʼ 5$,"+ʼ #8ʼ ")&ʼ +$ (ʼ ##"ʼ 5$4&%&'"+6ʼ $'(6ʼ *)&,&ʼ '&!&++$,?6ʼ
+)$--ʼ $-+#ʼ 8#,%ʼ $ʼ ##"2$")6ʼ +188 ! &'"-? 8&'!&(6ʼ ,#1'(ʼ #,ʼ 'ʼ 8,#'"ʼ
#8ʼ +1!)ʼ &'!&ʼ $'(ʼ ")&ʼ 5&,+#'ʼ '&.-&!"'.ʼ #,ʼ ,&81+ '.ʼ +#ʼ "#ʼ (#ʼ
+)$--ʼ @&ʼ -$@-&ʼ "ʼ $ʼ 5&'$-"?ʼ '#"ʼ &9!&&('.ʼ &'ʼ)--'.+ʼ 8#,ʼ &$!)ʼ
3$?;+ʼ $-1,&ʼ $'($'?ʼ $. +",$"&ʼ #8ʼ $'?ʼ 1,.)ʼ *) !)ʼ +1!)ʼ +)$--ʼ)$4&ʼ
$(#2"&(ʼ ")&ʼ 5,#4 + #'+ʼ #8ʼ ") +ʼ !"ʼ #,ʼ $'?ʼ 5$,"ʼ ")&,&#8ʼ %$?ʼ #,(&,ʼ
")&ʼ +$ (ʼ ##"ʼ 5$4&%&'"+ʼ "#ʼ @&ʼ 8&'!&(ʼ 'ʼ $+ʼ $8#,&+$ (6ʼ $"ʼ ")&ʼ 92&'!&ʼ
#8ʼ +1!)ʼ 5&,+#'

ʼ '(ʼ @&ʼ "ʼ &'$!"&(ʼ)$"ʼ $--ʼ &--$,+ʼ $'(ʼ #")&,ʼ 5-$!&+ʼ $(Bʼ 1':ʼ 3DCE3 ʼ ODH FD/DGʼ #ʼ
>#' '.ʼ "#ʼ ")&ʼ 21@- !ʼ ",&&"+ʼ #,ʼ 5-$!&6ʼ)$4 '.ʼ $'ʼ ",?ʼ @?ʼ +1':ʼ
"&2+ʼ #,ʼ #")&,ʼ 2&' '.+ʼ 'ʼ ")&ʼ 5$4&%&'"ʼ @&?#'(ʼ ")&ʼ '&ʼ #8ʼ ")&ʼ
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$ʼ +188 ! &'"ʼ ,#'ʼ H,$" '.ʼ #,ʼ #")&,ʼ +188 ! &'"ʼ #4&,6ʼ 'ʼ +1!)ʼ E$?ʼ $+ʼ
%$?ʼ @&ʼ @&+"ʼ +1 "&(ʼ 8#,ʼ 2,&4&'" '.ʼ 3$'.&,ʼ #,ʼ '>1,?ʼ $'(ʼ 8ʼ $'?
5,#2, &"#,ʼ #,ʼ !!12 &,ʼ +)$--ʼ 8$ -ʼ "#ʼ !#'+",1!"ʼ +1!)ʼ H,$" '.ʼ #,ʼ #4&,ʼ
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<' '(' @&' "' &'$!"&(')$"' ")&' 5,#2, &"#,+' #8' $--' #1+&+' $'(' #")&,' 1 -(' '.+6' #,' #8' H$,(&'+6' $,(+6' H,#1'(+6' $'(' #")&,' &,"$.&+' #'' *) !)' 1 -'.+' $,&' '#"' &,&!"&(6' *) !)' $,&' $(># '' '.' "#' #,' 8,#'" '.' $'?' ",&&"6' C1$,&6' #,' #")&,' 21@- !' #,' 2, '! 2$-' 5-$!&' * ") '' $'?' +1!)' 1,.)6' +)$--6' $"' ")&' ,' #*'' 92&'!&6' *)&'' ,&C1 ,&(' @?' ")&' +$ (' #%N % ++ #'&,+6' !$1+&' ##"2$")+' @&8#,&' ")&' ,' 5,#2&,"?' ,&+2&!" 4&-?6' #'' ")&' (&+' #8' ")&' +$ (' #$(+6' ",&&"+6' C1$,&+6' #,' #")&,' 21@- !' #,' 2, '! 2$-' 5-$!&+6' "#' @&' %$(&6' $'(' "#' @&' *&--' $'(' +188 ! &'"-?' 2$4&(' * ")' 8-$"6')&*'6' #,' #")&,' "#'&+6' #,' "#' @&' !#'+",1!"&(' '' +1!)' #")&,' $''&,' $'(' #,%' $'(' #8' +1!)' ,&$(")' $+' ")&' +$ (' #%% ++ #'&,+' +)$--' (,&!"' $'(' '' !$+&' +1!)' 5,#2, &"#,+' +)$--' ,&81+&' #,' '&.-&!' #,' (&-$?' +#' "#' (#6' ")&' $. +",$"&' @&8#,&' *)#%' +1!)' #%2-$ '' +)$--' @&' @,#1.)' %$?' 8 '&' $'(' $%&,!&' +1!)' 5,#2, &"#,' '' 3#1@-&' ")&' %#1'' #8' ")&' &+" %$"&(' 92&'!&6' "#' @&' ,&!#4&,&(' '' %$''&,')&,& '' 2,#N 4 (&(6' $'(' #'' &!#4&,?' ")&,&#8' "#' $1")#, L&' $'(' (,&!' +1!)' ##' 5$4&%&'"+' "#' @&' %$(&' @?' ")&' +$ (' #%% ++ #'&,+

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< ' '(' @&' "' &'$!"&(')$"' '' +)$--' @&' -$*81-' "#' ")&' +$ (' #%N >1 ++ #'&,+' "#' 2,#4 (&' '' $'?' +1!)' 1,.)' $' 2,#2&,' 5#- !&' 88 !&6' 8' '&!&++$,?6' !#'"$ '.' +1 "$@-&' !!#%%#($" #'' 8#,' ")&' &&" '.+' #8' ")&' #%% ++ #'&,+6' $'(' 8#,' ")&' +&4&,$-' 88 !&,+' #8' ")&' +"$@- +)%&'"6' $'(' 8#,' !#'8 ' '.' 5, +#'&,+6' $+' 2,#4 (&(' 8#,' @?' ") +' !"6' $'(' $-+#' 2,#2&,' E$"!)B)#1+&+' '' (88&,&''' "1$" #'+6' $'(' "#' !#'",$!' * ")' 5,#2, &"#,+' 1 -(' '.+' 2,#2&,-?' $($2"&(' #,' *) !)' %$?' @&' !$2$@-&' #8' @& '.' $($2"&(' "#' ")&' 51,2#+&+' $8#,&+$ (6' #,' * ")' #")&,' 5&,+#'+' C1$- 8 &(' $'(' * -- '.' "#' &'"&,' '"#' +1!)' #'",$!"+6' 8#,' ")&' 51,!)$+&' #,

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-&4 &(' 1'(&,' #,' ''4 ,"1&' #8' ")&' 5#*&,+')&,&@?' .,$'"&(' ' $'(' '' !$+&'
#8' 3 88&,&'!&' @&"*&&'' ")&' +$ (' $. +",$"&+' $'(' ")&' +$ (' #%% ++ #'&,+'
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H$+' 1@&+6' $'(' "#' $88 9' ")&' +$%&6' *)&,&' '&!&++$,?6' 12#'' ")&' #1+&+' #,'
#")&,' 1 -(' .+' 12#'' ")&' (&+' #8' ")&' ",&&"+'] 5,#4 (&(' $-*$?+6' ")$"
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'' $%&' #8' 3$%$.&+' * ") '' #,"?B& .)'' #1,+' $8"&,' '' +)$--' @&'
(&%$'(8&(?p")&' +$%&' %$?' @&' ,&!#4&,&(' @?' 5# '('.' $'(' $-&' #8' ")&'
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+ ZD/'3' CD#' 3/DD3E!' ' '(' @&' '' &'$!"&(6')$"' '' !$+&' '' +)$--' @&' '&!&++$,?' 8#,' ")&'
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-$? '.' 5 2&+' 8#,' ")&' 122-?' #8' $'?' +1!)' 1,.)' * ")' E $"&,' #,' H$+6' #,'
8#,' $'?' #")&,' 51,2#+&+6' ")$"' ")&' ",&&"+' * ") '' $'?' +1!)' 1,.)' +)#1-('
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-&$+'' '!#'4&' &'' 8#,' ")&' ')$@ "$'"+6' $'(' * "-' ")&' -&$+'' 2#++ @-&'
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+$%&' $,&' .# '.' #'6' $'(' "#' ,&' '+"$"&' ")&' ",&&"+' $'(' #")&,' 5-$!&+' +#'
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(OO EE #' D/E'3 '2CC #3' H2FD#4D/E' ' '(' @&' '' &'$!"&(')$"' ")&' +$ (' #%% ++#'&,+' %$?' $2B'
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+1!)' 1,.)6' 8,#%' +1!)' 5&,+#'' $+' %$?' @&' * -- '.' "#' !#'",$!'' $'('
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1 -L &6' &9!&2" '.' $-*$?+' "$@-&' $'(' ?,&' 31'.6' $'(' ")&' &81+&'
#8' -$1.)"&,B)#1+&+6' !#--&!"&(' 12#'' ")&' ",&&"+6' $'&+6' !#%%#''
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#1'!-6' #,' #")&,' 5&,+#'+' (1-?' $1")#, L&(6' +)$--' 2,#4 (&' '' ")&'
1@1,@+' #,' #")&,' 2,#2&,' $'(' !#'4&' &'' 5-$!&' #8' $'?' +1!)' 1,.)' 8''
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#8' 5,#!-$%$" #'' '' +1!)' 1,.)6' #'!&' $' 3$?' 8#,' &4&'' 3$?+')$4&'
(&!-$,&(' ")&' +$%&' "#' @&' #2&'6' '' +)$--' '#'' ")&,&$8"&,' @&' -$*81-' 8#,'
$'?' &+)7,' #,' 1"!)&,' #,' #")&,' 5&,+#'' X2, 4$"&' 5&,+#'+' '' ")&,'
#*'' 5,&% +&+6' 8#,' ")&' V+&' #8' ")&,' #*'' $% - &+' $'(' '!#,2#,$" #'+6'
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!&2"&(6[' "#' +-$1.)"&,' $""-&' #,' #")&,' &$+"+' &-+&*)&,&' ")$'' '' ")&'
)$%@-&+' #,' -$1.)"&,B)#1+&' +#' "#' @&' 2,#4 (&(' ' $'(' $'?' 5&,+#''
")&,&$8"&,' 1+ '.' $'?' #")&,')$%@-&+' #,' -$1.)"&,B)#1+&' +)$--' @&' - $@-&

' ' ' B ' ' (2C T' VU

"#' ")&' +$ (' #%% ++ #'&,+' '' $' 5&'$-"?' '#" &9!&&('.' *&'"?'
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"#' (&%$'(' $'(' "$:&' 8#,' ")&' V+&' ")&,&#8' +1!)' ,&$+#'$@-&' $"&' #,'
1%' $+' %$?' @&' $.,&&(' #'' $'(' 8 9&(' @&"*&&'' ")&%' $'(' ")&' +$ ('
$. +",$"&+' $'(' '' !$+&' #8' 3 88&,&'!&' $+' "#' ")&' $"&' "#B' @&' "$:&''
8#,' ")&' V+&' #8' +1!)' -$1.)"&,B)#1+&' #,')$%@-&+6' ")&' +$%&' +)$--6'
12#'' ")&' 22- !$" #'' #8' & ")&,' 5$,"?6' $'(' $8"&,' &4&'' 3$?+' 2,&4 #1+'
#" !&' "#' ")&' #")&,' 5$,"?' #8' +1!)' '"&'(&(' 22- !$" #'6' @&' 8 9&(' $'('
(&"&,% '&(' @?' ")&')&, 88' #8' ")&' #1'"?6' *)#+&' 3&! + #'' ")&,&#''
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$'?' +1!)' 1,.)' 8#,' ")&' %&' @&' '.' +)$--')$4&' 81--' 5#*&,' $'(' 1B'
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+1!)' 1%@&,' #8' $!:'&?' #$!)&+6' $'($1+6')$, #"+6' #,' #")&,'
$,, $.&+' 8#,' ,&6' $+' ")&?' 8,#%' %&' "#' %&' +)$--' ") ':' 2,#2&,'
$'(' ")&' #*'' -&,:' #8'+1!)' 1,.)' +)$--' @&' &'" "-&(' "#' &9$!" ")&' 1%'
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&$,+6' $'(' "#' 2,&4&'" $--' #")&,+6' '#" - !&'+&(6' 8,#%' 2-> '.' 8#,' ,&6'
#,' #!!12? '.' $'?' 5$," #8' ")&' ",&&"+' #,' .)*$?+' #8' +1!)' 1,.)6
1@1,@+' #,' @&," &+' ")&,&#8' $'(' 8'$'?' 5&,+#'' #,' 5&,+#'+' *)#' +)$--'
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#@"$ ' '.' #,' ,&!& 4 '.' ")&' +$%&6' :&&2' $'(' %$ '"$ '' +1!)' #$!)' #,'
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$'(' #'4&' &'!&' #8' ")&' 51@- !6' $'(' !#'" '1&' +#' "#' (#' (1, '.' ")&'
#'" '1$'!&' #8') +' #,')&,' !&'!&6' $'(' +)$--6' #' ")&' #%2-$ '" #8' ")&'
5,#!1,$"#,' +!$-' #,' #")&,' 21@- !' 5,#+&!1"#,' #8' +1!)' 1,.)6' @&'
!#'4 !"&(' ")&,&#8' @&8#,&' ")&' +$ (' $. +",$"&+6' #,' $'?' '&' #8' ")&%6
@?' ")&' $")' #,' $")+' #8' '&' #,' %#,&' !,&(@-&' E "'&++' #,' E "'&++&+6'
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#88&'(' '.' +)$--' +1,,&'(&,') +' !&'!&' "#' ")&' +$ (' $. +",$"&6' +1!)'
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$'(' &.1-$" #'+' $+' ")&?' +)$--' ") ':' 8" 8#,' - !&'+ '.' $'(' ,&.1-$" '.'
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+)$--' @&' $--#*&(' "#' @&' "$:&'' @?' ")&%6' $'(' "#' *)$" 3 +"$'!&6' $'('
1'(&,' *)$" 5&'$-" &+6' #$!)%&'6' 3, 4&,+6')$,%$'6' $'(' 5#,"&,+'
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!&&('.' &4&'' -&+' 8#,' #$!)%&'6' $'(' *#' -&+' 8#,')$,%&''
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")#, L&(' $'(' &%2#*&,&(' 8,#%' %&' "#' %&' "#' ,&2&$-6' $('(' "#6' $-"&,6'
#,' $%&'(' +1!)' 1-&+' $'(' &.1-$" #'+6' $'(' "#' %2#+&' '&+'
$'(' 5&'$-" &+' 8#,' ")&' ,&$!)' #,' #'2&,8#,%$'!&' #8' +1!)' 1-&+'
$'(' &.1-$" #'+' *) !)' '&+' $'(' 5&'$-" &+' +)$--' @&' ,&!#4&,$@-&'
#'' ")&' #%2-$ '" #8' ")&' 5,#!1,$"#,' +!$-' #,' #")&,' 21@- !' 5,#+&!1"#,'
#8' +1!)' 1,.)6' #,' #'' ")&' #%2-$ '" #8' ")&' 2, 4$"&' 5$,"?' $.., &4&('
(&!-$, '.

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-$" #'+ %$(& @? +1!) $. +""$"&+ $'(#1'! -6 +2&! 8? ' . ")& '&+
$'(5&'$-" &+ 8#, ")& ,&$!) $'(#'2&,8#,%$'!& ")&,&#86 +)$-- 8,#%
%& "# %&6 $+ #8"&' $+ ")&? +)$-- @& %$(&6 $-"&,&(6 #, 4$, &(6 @&
21" 126 & ")&, 5, '" #, E , " ' .6 #' +1!) 5-$!& #, 5-$!&+ $+ ")&
+$ ($. +",$"&+ $'(#1'! - +)$-- ") ' : 2,#2&,6 $" $-- %&+ "#
,&%$ ' $'(@& ")& +$ (5-$!& #, 5-$!&+

@23D/ ./ O = .E! H "# OD H #FD6DG 7 7

< '(@& "&'$!"&( )$" " +)$-- @& -$*81- 8#, ")& +$ (
#%% ++ #'&,+ "# ,&C1 ,& ")$" ")& E$"&, 8,#% ")& ##8+ $'(#,B
>> !&+ #8 $-- #1+&+ #, #")&, 1 -(' .+ 8,#'" ' . ")& 21@- ! ",&&"+6
$'&+6 #$(+6 5$++$.&+6 E?'(+6 $'(-#+&+6 +)$-- @& !#'4&?&(@?
-&$(&' #,#")&, 2,#2&, 5 2&+ #, 1'+6 "# @& @,#1.)" (#*' ")& E$--+
#8 +1!) #1+&+ #, #")&, 1 -(' .+ ,&+2&!" 4&-? "# ")& H,#1'(6 $'(
+)$-- @& :&2" ,&2$,6 $" ")& 92&'!& #8 ")& 5,#2, &"#,+ #8 +1!)
#1+&+ #, #")&, 1 -(' .+ ,&+2&!" 4&-?6 @1" +# $+ ")$" ")& +$%& +)$--
'#" (+!)$,.& ")& E$"&, ")&,&@? !#'4&?&(12#' ")& ##" 5$4&N
%&'"+ $'(8$'? +1!) 5,#2, &"#, +)$-- 8$ - #, '&.-&!" "# !#'4&? +1!)
##8 E$"&, %$''&, $8#,&+$ (6 * ") #1,"&&' 3$?+ $8"&, @& ' .
,&C1 ,&("# (# +# @? +1!) #%% ++ #'&,+6 $'? $. +",$"& %$?6 #'
#%2-$ '" $+ $8#,&+$ (6 #,(&, ")& E#, :+ '&!&++$,? 8#, !#'4&? ' . ")&
+$ (E$"&, %$''&, $8#,&+$ ("# @& (#'& $" ")& 92&'!& #8 +1!)
5,#2, &"#,+6 "# @& ,&!#4&,&(6 $-#' . * ") ")& 92&'!&+ #8 ")& 2B
2- !$" #'7 @? 5# '(' . $'($-& $+ $8#,&+$ (

+ ZD/ 3 (O O EE #^ D/E 3 O/ #4 @23D/ #3 3"D I/4"

< '(@& "&'$!"&( )$" " +)$-- @& -$*81- 8#, ")& +$ (#%N
% ++ #'&,+ "# (. E&--+ $'(6 &9!&2" '+1!) 1,.)+ *) !) ")&,& +)$--
@& E#, :+ $-,&$(? &+"$@- +)&(@? !" #8 5$,- $%&'" 8#, ")& +122-? ' .
$'? +1!) 1,.) * ") E$"&,6 "# @, ' . E$"&, '"# +1!) 1,.) 8#, ")&
V+& #8 ")& ')$@ "$'"+6 $'(8#, ")$" 51,2#+& "# !#'",$!" $'($.,&&
* ") ")& 5,#2, &"#,+ $'($-- #")&, 5&,+#'+ '"&,&+"&($'? 2, ' .+6
",&$%6 #, 4&, !$2$@-& #8 +122-? ' . +1!) 1,.)6 $'(* ") ")&
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",&$%6 #, 4&, $'(+1!) 1,.)6 8#, ")& .)" $'(5, 4 -&.& #8
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'"# +1!) 1,.)6 $'(#8 &,&!" ' . +"&, '+ $'(-$? ' . 5 2&+6 $'("#
!#'+",1!" $-- #")&, '&!&++$,? E#, :+ 8#, !#'4&? ' . +1!) E$"&, '"#
+1!) 1,.)6 $'("),#1.) ")& '(+ #, H,#1'(+ -? ' . @&"*&&'
+1!) 2, ' .+6 ",&$%6 #, 4&, $'(+1!) 1,.)6 $'($-+# "),#1.)
")& ",&&"+ $'($'&+ ")&,&#86 $'("# #2&' +1!) H,#1'(8,#% %&
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%& "# %& "# !#'",$!" $'($.,&& * ") +1!) 5&,+#'+ $+ ")&? +)$--
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2$, ' . +1!) E#, :+6 $+ %$? @& '&!&++$,? 8#, &88&!" ' . ")& 51,2#+&+
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A / 3"D +/ 3DH3 # . @23D/ + CDE!

< '(@& &C$!"&( )$" $-- $'(&4&,? ")& 5 2&+ #, #")&,
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"7 B#1.)6 $-#'.6 #, $!,#++ #, ,#1'($'? #$(6 ",&&"6 $'&6 #, #")&,
21@- ! 5$++$.& #, 5-$!& * ") +1!) 1,.)6 +)$-- @& +# -$ ($" ")&
.,&$"&+" 2,$!" !$@-& 3 +"$'!&6 $'(6 *)&'&4&, ")& E (") #8 ")& $,, $.&N
*$? +1!) ",&&" #, 5-$!& * -- $--#* ")&,&#86 $" ")& 3 +"$'!& #8
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#1,' &&"' $"' -&$+"' 8,#%' ")&' '&$,&+"' 5$,"' #8'$'?' E$"&,' 5 2&6' #1.)6' #,'
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#'4&?$'!&' #8' E$"&,' '6' 1'(&,6' "),#1.)6' $-#'.6' $!,#++6' #,' ,#1'(' $'?'
#8' ")&' ",&&"+6' $'&+6' #,' #")&,' 21@- !' 5$++$.&+' #,' 5-$!&+' * ") '' +1!)'
1,.)6' &9!&2"' '' $+&+' *)&,&' "' +)$--' @&' 1'$4# ($@-?' '&!&++$,?' "#'
-$?' ")&' H$+' 5 2&+' $!,#++' $'?' #8' ")&' +$ (' E$"&,' 5 2&+6' #1.)+6' #,'
E$"&,!#1,+&+6' '' *) !)' $+&+' ")&' +$ (' H$+' 5 2&+' +)$--' @&' -$ (' #4&,'
$'(' $@#4&' ")&' +$ (' E$"&,' 5 2&+6' #1.)+6' $'(' E$"&,!#1,+&+' $"' ")&'
.,&$"&+"' 2,$!" !$@-&' 3 +"$'!&' ")&,&8,#%6' $'(' +)$--' 8#,%' ")&,&* ")'
$+' '&$,' $+' 2#++ @-&' $' .)"' '.-&' $'(' '' +1!)' $+&+' ")&' +$ ('
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!#1,+&+' +)$--' @&' $"' -&$+"' 9' &&"' '' &'.")6' +#' ")$"' '#' R#''
#8' $'?' #8' ")&' +$ (' H$+' 5 2&+' +)$--' @&' '&$,&,' "#' $'?' 5$,"' #8' ")&'
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"#' ")&,' @&' '.' -$ (' '' ")&' ,&'!)6' @1"' +)$--' -$?' &$!)' 5 2&' $+' '&$,'
$+' %$?' @&' '' "+' 5-$!&' '' ")&' ,&'!)6' $'(' +)$--' '' +1!)' ,&'!)'
8#,%' ")&' R#''.' * ")' ")&' #")&,' 5 2&+' "#' @&' $((&(' ")&,&"#' * ")'
2,#2&,' $'(' +18- !&''' $"&, $-+6' $'(' +)$--' $-+#' %$:&' $'(' :&&2' $--' $'('
&4&,?' +1!)' 5 2&+6' $'(' $--' 5 2&+' !#''&!"'.' #,' !#%%1' !$"'.' ")&,&N
* ")6' $'(' $--' ")&' !,&*+6' R#''+6' '-&"+6' 2&,"1,&+6' #,' 2&' '.+'
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")&' +$ (' H$+' 8,#%' &+!$2 '.' ")&,&8,#%6' 12#'' 2$'' #8' 8#,8&''.' 8#,'
$'?' +1!)' 88&'!&6' 8' ")&' +$ (' #%% ++ #'&,+' +)$--' '&.-&!"' #,' ,&81+&'
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#" !&' ")&,&#8' . 4&'' "#' ")&%' '' E, "'.6' ")&' 1%' #8' 8"?' 5#1'(+6'
"#' @&' ,&!#4&,&(6' $"' ")&' '+"$'!&' #8' $'?' 5&,+#'')$4 '.' '"&,&+"6' @?'
+1%%$,?' #%2-$''' "#' ")&')&,88A' #8' ")&' #1'"?' '' *) !)' +1!)'
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< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' *)&'&4&,' ")&' E$"&,' #8' 'C/DFD#3'
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"$% '$"&(' #,' $8 &!"&(' @?' ")&' H$+' "#' @&' +122- &(' 1'(&,' ")&' 1")#, "?' @23D/' O6'
#8' ") +' !"6' ")&' +$ (' #%% ++ #'&,+' +)$--' 8#,8&' "' $'(' 2$?' 8#,' &4&,?' 2E'
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'8' ")&' E$"&,' #%2$'?' #,' *'&,' #8' ")&' E$"&, *#,:+' $88&!"&(' ")&,&@?'
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% ++ #'&,+' +122-? '.' +1!)' H$+' +)$--6' * ") '' *&''?B8#1,' #1,+' '&9"'
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+1!)' E$"&,' #%2$'?6' *'&,6' #,' #%2$'?' #8' 5,#2, &"#,+6' #,' @?' $'?'
5&,+#'' !#'+1% '.' ")&' E$"&,6' "#' @&' -&8"' * ")' #,' $"' ")&' 88 !&' #8' ")&'
-&,:' #8' ")&' +$ (' #%% ++ #'&,+6' !$1+&' ")&' %#+"' 2,#2&,' $'(' &88&!N
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$--ʼ $ ' (ʼ &4&,?ʼ +1!)ʼ #'"$% '$" #'ʼ *)&,&#8ʼ #" !&ʼ +)$--ʼ @&ʼ . 4&'ʼ $+ʼ $8#,&+$ (6ʼ ")&'ʼ $ ' (ʼ 'ʼ &4&,?ʼ +1!)ʼ $+&ʼ ")&ʼ +$ (ʼ #%% ++ #)&,+ʼ +)$--6ʼ #'ʼ &$!)ʼ $ ' (ʼ &4&,?ʼ #%2-$ '"ʼ *)&,&#8ʼ #" !&ʼ +)$--ʼ @&ʼ . 4&'ʼ $+ʼ $8#,&+$ (6ʼ 8#,8& "ʼ $ ' (ʼ 2$?ʼ "#ʼ ")&ʼ ,&$+1,&,ʼ 8#,ʼ ")&ʼ %&ʼ B@& ' .6ʼ #,ʼ "#ʼ $ '?ʼ "3 ')ʼ #8ʼ ")&ʼ 3 ,&!"#,+ʼ 8#,ʼ ")&ʼ %&ʼ #8ʼ +1!)ʼ E $"&,ʼ #%2$'?6ʼ #,ʼ "#ʼ +1!)ʼ * '&,ʼ #8ʼ E $"&, *#, :+6ʼ 8#,ʼ ")&ʼ V+&ʼ $ ' (ʼ &'&8 "ʼ #8ʼ +1!)ʼ #%N 2$ '?ʼ #,ʼ * '&,6ʼ #4&,ʼ $ ' (ʼ $@#4&ʼ ")&ʼ @&8#,&B%&'" #'&(ʼ 5&'$-"?ʼ #8ʼ *&'"?ʼ 5#1'(+6ʼ "#ʼ @&ʼ ,&!#4&,&(ʼ $+ʼ)&,& 'ʼ (,&!"&(6ʼ ")&ʼ 1%ʼ #8ʼ &'ʼ 5#1'(+ʼ 8#,ʼ &$!)ʼ $ ' (ʼ &4&,?ʼ 3 $?ʼ (1, ' .ʼ *) !)ʼ +1!)ʼ E $"&,ʼ +)$--ʼ @&ʼ $ ' (ʼ ,&%$ 'ʼ !#'"$% '$"&(6ʼ "$ '"&(6ʼ #,ʼ $88&!"&(ʼ @?ʼ ")&ʼ H$+ʼ #8ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+ʼ ʼ $ ' (ʼ 'ʼ (&8$1-"ʼ #8ʼ 5$?%&'"ʼ ")&,&#8ʼ $+ʼ $8#,&+$ (6ʼ +1!)ʼ 5&'$-"?ʼ #,ʼ 5&'$-" &+ʼ +)$--ʼ $ ' (ʼ %$?ʼ @&ʼ ,&!#4&,&(ʼ @?ʼ +1%%$,?ʼ #%2-$ '"ʼ "#ʼ ")&ʼ)&, 88ʼ #8ʼ ")&ʼ #1'"?ʼ 'ʼ *) !)ʼ +1!)ʼ 1, .)ʼ +ʼ + "1$"&6ʼ * ")ʼ ")&ʼ 4 (&'!&ʼ #'ʼ $")ʼ #8ʼ '&ʼ !,&(@-&ʼ E "'&++6ʼ @?ʼ $ ' (ʼ 'ʼ ")&ʼ $%&ʼ #8ʼ $ '?ʼ '&ʼ #,ʼ %#,&ʼ #8ʼ ")&ʼ 3 ,&!"#,+ʼ #8ʼ $ '?ʼ +1!)ʼ E $"&,ʼ #%2$'?6ʼ #,ʼ #8ʼ +1!)ʼ * '&,6ʼ $"ʼ ")&ʼ 2" #'ʼ #8ʼ ")&ʼ 5$,"?ʼ #,ʼ 5$," &+ʼ 21,+1 ' .ʼ +1!)ʼ #%2-$ '"ʼ $.$ '+"ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+ʼ @&8#,&ʼ ")&ʼ +$ (ʼ)&, 886ʼ * ")ʼ +1!)ʼ 92&'!&+ʼ ")&,&8#,ʼ $+ʼ +)$--ʼ @&ʼ %#(8 &(ʼ @?ʼ) %6ʼ $ ' (ʼ "#ʼ @&ʼ -&4 &(ʼ @?ʼ 3 &! ,&&ʼ $ ' (ʼ 5,&!&2"ʼ #8ʼ 5# ' (' .ʼ ")&ʼ H##(+ʼ $ ' (ʼ 88&!"+ʼ #8ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+66ʼ "#.&")&,ʼ * ")ʼ ")&ʼ 92&'!&+ʼ #8ʼ +1!)ʼ 3 &! ,&&"ʼ $ ' (ʼ 5,&!&2"ʼ $ ' (ʼ +1!)ʼ 5&'$-"?ʼ #,ʼ 5&'$-" &+6ʼ *)&'ʼ +#ʼ -&4 &(6ʼ +)$--ʼ @&ʼ 2$ ("#ʼ ")&ʼ ,&$+1,&,6ʼ #,ʼ "#ʼ '&ʼ #8ʼ ")&ʼ 3 ,&!"#,+ʼ 8#,ʼ ")&ʼ %&ʼ @& ' .ʼ #8ʼ ")&ʼ #%2$'?6ʼ #,ʼ "#ʼ ")&ʼ * '&,ʼ #8ʼ +1!)ʼ E $"&,ʼ !#'"$% '$"&(ʼ #,ʼ $88&!"&(ʼ @?ʼ +1!)ʼ H$+A

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< ʼ ' (ʼ *)&,&$+ʼ "ʼ %$?ʼ @&ʼ #,ʼ @&!#%&ʼ $ʼ T1&+" #'ʼ 12#'ʼ +1!)ʼ #%2-$ '"ʼ $+ʼ $8#,&+$ (6ʼ *)&")&,ʼ ")&ʼ +$ (ʼ E $"&,ʼ @&ʼ !#'"$% '$"&(ʼ #,ʼ $88&!"&(ʼ @?ʼ ")&ʼ H$+ʼ +122- &(ʼ 1'(&,ʼ ")&ʼ 1")#, "?ʼ #8ʼ ") +ʼ !"ʼ @&ʼ "ʼ ")&,&8#,&ʼ &'$!"&(6ʼ)$"ʼ 'ʼ &4&,?ʼ +1!)ʼ $+&ʼ "ʼ +)$--ʼ $ ' (ʼ %$?ʼ @&ʼ -$*81-ʼ "#ʼ $ ' (ʼ 8#,ʼ ")&ʼ +$ (ʼ * '&,ʼ #,ʼ #%2$'?ʼ #8ʼ 5,#2, &"#,+ʼ #8ʼ E $"&, *#, :+ʼ "#ʼ $22-?ʼ "#ʼ ")&ʼ)&, 88ʼ #8ʼ ")&ʼ #1'"?ʼ 'ʼ *) !)ʼ +1!)ʼ 1, .)ʼ +ʼ + "1$"&(ʼ 8#,ʼ $ʼ E $,,$'"6ʼ $ ' (ʼ #'ʼ #@"$ ' ' .ʼ ")&ʼ +$%&ʼ "#ʼ (.ʼ "#ʼ $ ' (ʼ $@#1"ʼ $ ' (ʼ +&$,!)ʼ $ ' (ʼ &9$% '&ʼ ")&ʼ $ '+6ʼ 5 2&+6ʼ #'(1 "+6ʼ $ ' (ʼ 22$,$"1+ʼ #8ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+6ʼ 8#,ʼ ")&ʼ 51,2#+&ʼ #8ʼ $+!&,"$ ' ' .ʼ *)&")&,ʼ +1!)ʼ #'"$% '$"# 2,#!&&(+ʼ #,ʼ @&ʼ #!!$+ #'&(ʼ @?ʼ ")&ʼ H$+ʼ #8ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+ʼ ʼ $ ' (ʼ 8ʼ "ʼ +)$--ʼ $22&$,ʼ ")$"ʼ ")&ʼ +$ (ʼ E $"&,ʼ)$+ʼ @&&'ʼ !#'"$% '$"&(ʼ @?ʼ $ '?ʼ +!$2&ʼ #8ʼ +1!)ʼ H$+6ʼ ")&ʼ 92&'!&+ʼ #8ʼ ")&ʼ +$ (ʼ 3 . . ' .6ʼ &$, !)6ʼ $ ' (ʼ 9$% '$" #'6ʼ $ ' (ʼ &2$,ʼ #8ʼ ")&ʼ 5$4&N %&'"ʼ #8ʼ ")&ʼ ",&&"ʼ #,ʼ ",&&"+ʼ *) !)ʼ +)$--ʼ @&ʼ "$:&'ʼ 12ʼ #,ʼ (+"1,@&(6ʼ +)$--ʼ @&ʼ @#,'&ʼ $ ' (ʼ 2$ (ʼ @?ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+ʼ *) !)ʼ 92&'!&+ʼ +)$--ʼ @&ʼ $+!&,"$ '&(ʼ $ ' (ʼ (&"&,% '&(6ʼ 8ʼ '&!&++$,?6ʼ @?ʼ ")&ʼ)&, 88ʼ #8ʼ +1!)ʼ #1'"?6ʼ $ ' (ʼ @&ʼ ,&!#4&,&(ʼ @?ʼ 3 &! ,&&ʼ $ ' (ʼ 5,&!&2"ʼ #8ʼ 5# ' (' .6ʼ $+ʼ)&,& 'B@&8#,&ʼ (,&!"&(ʼ] 5,#4 (&(ʼ $-*$?+6ʼ ")$"ʼ 8ʼ 12#'ʼ +1!)ʼ 9$% N '$" #'ʼ "ʼ +)$--ʼ $22&$,ʼ ")$"ʼ +1!)ʼ #'"$% '$" #'ʼ)$+ʼ '#"ʼ $, +&'ʼ 8,#%ʼ $ '?ʼ +1!)ʼ +!$2&ʼ #8ʼ H$+ʼ 8,#%ʼ $ '?ʼ #8ʼ ")&ʼ $ '+6ʼ 5 2&+6ʼ #,ʼ #'N (1 "+ʼ #8ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+6ʼ ")&'ʼ ")&ʼ #%2$ '?ʼ #,ʼ 5&,+#'+ʼ +122-? ' .ʼ +1!)ʼ E $"&,ʼ +)$--ʼ @&$,ʼ $ ' (ʼ 2$?ʼ $--ʼ ")&ʼ 92&'!&+ʼ #8ʼ +1!)ʼ 9$,) '$" #'6ʼ &2$,6ʼ $ ' (ʼ &$, !)6ʼ $ ' (ʼ +)$--ʼ $-+#ʼ %$:&ʼ .##(ʼ "#ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+ʼ $ '?ʼ #++6ʼ '>1,?6ʼ #,ʼ 3 $%$.&ʼ *) !)ʼ %$?ʼ @&ʼ #! !$N + #'&(ʼ "#ʼ ")&ʼ +$ (ʼ $ '+6ʼ 5 2&+6ʼ #'(1 "+6ʼ #,ʼ 22$,$"1+ʼ #8ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+ʼ @?ʼ +1!)ʼ &$, !)ʼ $ ' (ʼ 9$% '$" #'6ʼ $ ' (ʼ $-+#ʼ "#ʼ ")&ʼ 5$4&%&'"ʼ #8ʼ ")&ʼ +$ (ʼ ",&&"+ʼ +#ʼ @,#:&'ʼ #,ʼ (+"1,@&(ʼ 'ʼ +1!)ʼ &$, !)ʼ

6 ʼ ")&

")&' %#1'" #8' +1!)' '>1,?' "#' @&' $+!&,"$ '&(' $'(' (&"&,% '&(6' 8' '&!&++$,?6' @?' ")&')&, 88' #8' +1!)' #1'"?6' $'(' ,&!#4&,$@-&' ' - :&' $''&,' $+' ")&' 5&'$-" &+' $,&')&,& 'B@&8#,&' (,&!"&(' "#' @&' ,&!#4&,&(

' 5,#4 (&(' $-+#6' $'(' @&' " 81,")&,' &'$!"&(')$" X7'#") '.')&,& ' !#'"$ '&(' +)$--' &9"&' (' #,' @&' !#'+",1&(' "#' 2,&4&'" $'?' 5&,+#' #,' 5&,+#'+' 8,#%' 2,#!&&('.' $.$ '+'" ")&' +$ (' #%% ++ #'&,+' ' ,&+2&!" #8' $'?' +1!)' H$+' E#,:6' #,' ")&' &")#(' *) !)' +)$--' @&' &%2-#?&(' @?' ")&%' 8#,' 81,' +) '.' +1!)' .)" $+' $8#,&+$ (6' $+' $' 21@- !' #,' 2, 4$"&' 1 +$'!&6' #,' 8,#%' @, '. '.' $'?B' !"#'+' $.$ '+'" ")&' +$ (' #%% +N + #'&,+' 8#,' $'?' '>1,?' +1+"$ '&(' @?' ,&$+#' #8' $'?' +1!)' E#,:+' #,' &")#(' #8' - .)" '.6' *)&")&,' +1!)' '>1,?' +)$--' 2,#!&&(' 8,#%' ")&' $"1,&' #8' +1!)' &")#(' #8' - .)" '.6' #,' ")&' $,&-&++'&++' #,' E$'" #8' : --' #8' ")&' 5&,+#'+' *)#' %$?' @&' &%2-#?&(' ")&,& '

+D/E #E' 02] #4' 2E' 8,#7%7'(!"B' OD#3'. /'2') I E2#HD'

' '(' @&' "&'$!"&(')$" " +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%B' % ++ #'&,+6' &9!&2" ' +1!)' 1,.)+' ' *) !)' ")&,&' +)$--' @&' E#,:+' $-,&$(?' &+"$@- +)&(' @?' !" #8' 5$,- $%&'" 8#,' ")&' +122-? '.' $'?' +1!)' 1,.)' *")' E$"&,' #,' H$+6' "#' ",&$" $'(' $.,&&' 8#,6' $'(' ")&,&$8"&,6' *")' ")&' #'+&'" #8' ")&' 5,#2, &"#,+' #,' #")&,' ,1+"&&+' #,' #")&,' 5&,B' +#'+' ')$,.&' #,' $'$.&%&'" ")&,&#86' "#' $++1%&' $'(' "$:&' ")&' $'$.&%&'" #8' +1!)' E#,:+' $'(' +"$@- +)%&'"6' $, ('#8' ")&' +122-? '.' #8' E$"&,' #,' H$+' ")&,&@?6' #,' #")&,* +&6' "#' +1!)' 1,.)]' 5,#4 (&(' $-*$?+6' ")$" ")&' +$ (' #%% ++ #'&,+' +)$--' 2,&4 #1+-?' ")&,&"#' +$" +8$!N "#, -?' 1'(&,"$:&' 8#,' $--' ")&' 3&@"+' $'(' @- .$" #'+' -&.$--?' (1&' @?' $'(' '!1%@&'" #' +1!)' E$"&,*#,:+' #,' +"$@- +)%&'"6' $'(' 8,&&' $'(' '(&%' 8?' ")&' 5&,+#'+' ")&,&"#8#,&')$4 '.' ")&' $'$.&%&'" $'(' (% ' +",$" #' ")&,&#8

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FDE3DG' #
(O O EE #' D/E

' '(' @&' "&'$!"&(')$" 8' $'?' 5&,+#' +)$--' "$:&' #,' !$1+&' "#' @&' "$:&' #,' 1+&(' $'?' E$"&,' #1" #8' $'?' 5#'(6' $':6' &+&,4#' ,6' #,' C1&(1!"6' #,' #")&,' E#,:' @&-#' '.' "#' ")&' +$ (' #%% ++ #'&,+6' *)&")&,' ")&' +$%&' @&' $-,&$(?' %$(&6' #,' +)$--' @&' %$(&' #,' $!C1 ,&(' @?' 4 ,"1&' #8' ") +' !"6' * ")#1" ")&' 2,&4 #1+' #'+&'" ' E, " '.' #8' ")&' +$ (' #%% ++ #'&,+' "#' . 4&' +1!)' #'+&'"6' ")&' $'(' ' &4&,?' +1!)' $+&' &4&,?' 5&,+#' +#' #88&'('.' +)$--' 8#,8&' $'(' 2$?' $' 1%' '#" &9!&&('.' 8"?' 5#1'(+' "&,- '.' 8#,' &4&,?' +1!)' 8 &'!&

@23D/' '#' 3'
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' '(' @&' "&'$!"&(6')$" 8' $'?' 5&,+#' +)$--' * -81--?' #,' %$- ! #1+-?' ($%$.&' #,' (&+",#?' $'?' +"&,'6' 5 2&6' #,' 22$,$"1+6' #,' #")&,' E#,:' 8#,' +122-? '.' E$"&,' #,' H$+' $+' $8#,&+$ (6' #,' +)$--' *$'B "#'-?' (+!)$,.&' #,' -&" #88' $'?' E$"&,' #,' H$+' 8,#%' +1!)' +"&,'6' 5 2&6' 22$,$"1+6' #,' #")&,' E#,:6' &4&,?' +1!)' 5&,+#' +)$--6' @&+ (&+' ")&' 81--' %#1'" #8' ")&' 3$%$.&' (#'&' ")&,&@?6' 8#,8&' $'(' 2$?' "#' ' &' +$ (' #%% ++ #'&,+' $'?' 1%' '#" &9!&&('.' 8"?' 5#1'(+' "&,- '.' 8#,' &4&,?' +1!)' 88&'!&

+D#2736' #
+D/E #E' O2"'

' '(' @&' "&'$!"&(6')$" " +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' &'"&,' '"#' #'",$!"+' *")' ")&' !!12 &,' #,' 5,#N 2, &"#,' #8' $'?' #1+&' #,' 5,&% +&+' +' "1$"&(' *") ' $'?' +1!)' 1,.)' 8#,' ")&' 122-?' #8' +1!)' *'&,' #,' !!12 &,' *")' E$"&,' #,' H$+6' $'(' @?' +1!)' #'",$!" +1!)' 5,#2, &"#,' #,' !!12 &,' %$?6' $") +' #*' 92&'!&6' @&' 2&,% "&(' "#' !#'4&?' E$"&,' #,' H$+' '"#' +1!)' #1+&' #,' 5,&% +&+6'

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12#'ʿ %$: '.ʿ+1!)ʿ$''1$-ʿ 5$?%&'ʿ "#ʿ ")&ʿ +$ (ʿ #%% ++#'&,+6ʿ $'(ʿ #'ʿ+1!)ʿ #'("#'+6ʿ$+ʿ %$?ʿ @&ʿ $.,&&(ʿ 12#'ʿ] 5,#4 (&(ʿ $-*$?+6ʿ ")$"ʿ 8ʿ$"ʿ$'?ʿ %&ʿ")&ʿ 5$?%&'ʿ #8ʿ+1!)ʿ$''1$-ʿ 1,$ʿ+)$--ʿ 8$--ʿ '"#ʿ $,,&$,6ʿ "ʿ+)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ #%% ++#'&,+ʿ "#ʿ -&4?ʿ ")&ʿ +$%&ʿ @?ʿ 5# '('.ʿ .'(ʿ $-&ʿ #8ʿ ")&ʿ 5$,"?;+ʿ 88&!"+ʿ 'ʿ %$''&,ʿ)&,& 'B@&8#,&ʿ 2,#4 (&(ʿ 8#,ʿ")&ʿ &!#4&,?ʿ #8ʿ ++&++%&'"+ʿ (1&ʿ 1'(&,ʿ")&ʿ 5,#4 +#'+ʿ #8ʿ") +ʿ !"6ʿ $'("#ʿ +"#2ʿ ")&ʿ 81,")&,ʿ 122-?ʿ #8ʿ E$"&,ʿ $'(ʿ H$+ʿ "#ʿ +1!)ʿ 5,&% +&+ʿ 'ʿ +1!)ʿ $''&,ʿ $+ʿ ")&?ʿ +)$--ʿ (,&!"ʿ $'(ʿ 2,#4 (&(ʿ $-+#6ʿ ")$"ʿ '#") '.ʿ)&,& 'ʿ !#'"$ '&(ʿ +)$--ʿ @&ʿ !#'+",1&(ʿ "#ʿ 2,&4&'ʿ $'?ʿ 5&,+#'ʿ 8,#%ʿ "$: '.ʿ E$"&,ʿ $"ʿ $'?ʿ #8ʿ ")&ʿ 21@-# E&--+ʿ $-,&$(?ʿ %$(&ʿ $'(ʿ &,&!"&(ʿ #,ʿ "#ʿ @&ʿ %$(&ʿ $'(ʿ &,&!"&(ʿ * ") 'ʿ +1!)ʿ 1,.)

<ʿ '(ʿ @&ʿ "&'$!"&(6ʿ)$"ʿ &4&,?ʿ 5&,+#'ʿ +#ʿ +122-&(ʿ * ")ʿ E$"&,ʿ +)$--ʿ 'ʿ &4&,?ʿ &!&2"$!-&ʿ 8#,ʿ E$"&,ʿ $88 9ʿ "#ʿ ")&ʿ 5 2&ʿ !#'N 4&? '.ʿ E$"&,ʿ '"#ʿ) +ʿ 5,&% +&+ʿ $ $--B!#!:ʿ #,ʿ #")&,ʿ +&-8B$!" '.ʿ #!:6ʿ 'ʿ +1!)ʿ $''&,ʿ $+ʿ ")&ʿ +$ (ʿ #%% ++#'&,+ʿ #,ʿ ")&,ʿ 88 !&,+ʿ +)$--ʿ (,&!"6ʿ $'(ʿ +)$--ʿ :&&2ʿ ")&ʿ +$%&ʿ 'ʿ ,&2$,6ʿ $'(ʿ +)$--ʿ 2,&4&'ʿ ")&ʿ E$"&,ʿ ,1'' '.ʿ "#ʿ *$+"&ʿ #,ʿ @& '.ʿ $22-&(ʿ "#ʿ ")&ʿ V+&ʿ #8ʿ $'?ʿ #")&,ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ ")$'ʿ ")#+&ʿ ,&+ (&'ʿ #'ʿ ")&ʿ 5,&% +&+ʿ>ʿ $'(ʿ $'?ʿ 5&,+#'ʿ +#ʿ #88&'('.ʿ+)$--ʿ 8#,8&ʿ $ 1%ʿ '#"&9!&&('.ʿ *&'"?ʿ) -- '.+ʿ "&,- '.ʿ 8#,ʿ &4&,?ʿ+1!)ʿ 88&'!&6ʿ * ")ʿ 5#*&,ʿ "#ʿ ")&ʿ +$ (ʿ #%% ++#'&,+ʿ #'ʿ ")&ʿ) ,(ʿ 88&'!&ʿ "#ʿ +"#2ʿ ")&ʿ 122-?ʿ #8ʿ E$"&,ʿ "#ʿ +1!)ʿ 5$,"?ʿ $'(ʿ ")&ʿ 88 !&,+ʿ #8ʿ +1!)ʿ #%% ++#'&,+ʿ +)$--ʿ)$4&ʿ 8,&&ʿ !!&++ʿ $"ʿ $--ʿ +&$+#'N $@-&ʿ %&+ʿ "#ʿ ")&ʿ 5,&% +&+ʿ +#ʿ "#ʿ @&ʿ +122-&(ʿ $+ʿ $8#,&+$ (6ʿ "#ʿ +&&ʿ ")$"ʿ +1!)ʿ $--B!#!:+ʿ $,&ʿ :&2"ʿ 'ʿ 2,#2&,ʿ $'(ʿ +188 !&'ʿ #'("#'ʿ $'(ʿ &2$,6ʿ $'(ʿ")$"ʿ +1!)ʿ E$+"&ʿ #,ʿ +$22-!$"#'ʿ (#&+ʿ '#"ʿ #!!1,

<ʿ '(ʿ @&ʿ "&'$!"&(ʿ)$"ʿ "ʿ+)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ #%% ++#'&,+ʿ "#ʿ @#,,#*ʿ $'(ʿ "$:&ʿ 126ʿ 8#,ʿ ")&ʿ 51,2#+&ʿ #8ʿ 2,#!1, '.ʿ $ 5#-!&ʿ 88 !&6ʿ &,&!" '.ʿ $ -$1.)"&,)#1+&ʿ #,ʿ)$%@-&+6ʿ #,ʿ E& .)B)#1+&6ʿ #,ʿ 8#,ʿ &,&!" '.ʿ $%2+6ʿ #,ʿ 8#,ʿ %$: '.ʿ $'(ʿ !#'+",1!" '.ʿ #%%#'ʿ &*&,+6ʿ $'?ʿ 1%ʿ '#"ʿ &9!&&('.ʿ),&&ʿ &$,+ʿ %#1'ʿ #8ʿ ")&ʿ +&4&,$-ʿ ++&++%&'"+ʿ 8 9&(ʿ $'((&"&,% '&(ʿ $+ʿ $@#4&ʿ 2,#4 (&(ʿ 'ʿ ,&-$" #'ʿ "#ʿ ")&+&ʿ +&4&,$-ʿ @>&!"+ʿ ,&+2&!" 4&-?6ʿ #,ʿ 8#,ʿ 2,#!1, '.ʿ E$"&,ʿ $'?ʿ 1%ʿ '#"ʿ &9!&&('.ʿ 9ʿ &$,+ʿ %#1'ʿ #8ʿ ")&ʿ ++&++%&'ʿ 8 9&(ʿ 8#,ʿ ")$"ʿ @>&!"ʿ ")$"ʿ +ʿ "#ʿ +$?6ʿ ")$"ʿ $ 1%ʿ %$?ʿ @&ʿ @#,,#*&(ʿ $'(ʿ $22-&(ʿ "#ʿ ")&ʿ +$ (ʿ 51,2#+&+6ʿ 'ʿ +#ʿ 8$,ʿ $+ʿ ")&ʿ +$%&ʿ ,&-$"&ʿ "#ʿ ")&ʿ E$"&!) '.ʿ 3&N 2$,"%&'"6ʿ '#"ʿ &9!&&('.ʿ),&&ʿ %&+ʿ ")&ʿ %#1'ʿ #8ʿ ")&ʿ 5,#2#,"#'ʿ #8ʿ ")&ʿ ++&++%&'"+ʿ +2&!8 &(ʿ $+ʿ $22-!$@-&ʿ 8#,ʿ '&ʿ &$,ʿ "#ʿ ")&ʿ 3&N 2$,"%&'ʿ #8ʿ E$"&!) '.6ʿ $+ʿ)&,& 'B@&8#,&ʿ 2,#4 (&(ʿ $'(ʿ '-:&ʿ $''&,ʿ 1,$+ʿ %$?ʿ @&ʿ @#,,#*&(ʿ 8#,ʿ ")&ʿ 51,2#+&ʿ #8ʿ @& '.ʿ $22-&(ʿ "#ʿ ")&ʿ $8#,&N +$ (ʿ 51,2#+&+ʿ !#''&!"&(ʿ * ")ʿ ")&ʿ #")&,ʿ 3&2$,"%&'"+ʿ ,&+2&!" 4&-?6ʿ '#"ʿ &9!&&('.ʿ),&&ʿ %&+ʿ ")&ʿ %#1'ʿ #8ʿ")&ʿ ++&++%&'"+ʿ +2&! 8 &(ʿ $+ʿ $22- !$@-&ʿ 8#,ʿ '&ʿ &$,ʿ "#ʿ &$!)ʿ #8ʿ ")&ʿ +$ (ʿ 3&2$,"%&'"+ʿ ,&+2&!"N 4&-?ʿ $'(ʿ '-:&ʿ $''&,ʿ $ 1%ʿ %$?ʿ @&ʿ @#,,#*&(ʿ 8#,ʿ 2,#!1, '.ʿ E$"&,ʿ #,ʿ +122-?ʿ '.ʿ H$+6ʿ #,ʿ 2$? '.ʿ 8#,ʿ $'?ʿ &9 +" '.ʿ E$"&,*#,:ʿ#,ʿ +"$@-+)%&'ʿ #,ʿ H$+E#,:ʿ $+ʿ $8#,&+$ (6ʿ '#"ʿ &9!&&('.ʿ 9ʿ &$,+ʿ %#1'ʿ #8ʿ ")&ʿ ?&$,-?ʿ ++&++%&'ʿ 8 9&(ʿ #'ʿ 8#,ʿ @, '. '.ʿ E$"&,ʿ '"#ʿ +1!)ʿ 1,.)

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'.' *(4&' #'")+' 8,#%' ")&' 3$"&' #8' $'?' +1!)' @#,,#* '.6' "#' $++&++'
$--' &'$'"+6' !!12 &,+6' $'(' 5#++&++#,+' #8' 5,&% +&+' 4$-1&(' $+' $8#,&N
+$ (' "' +1!)' $"' $(("#'$-' ++&++%&'"' @&?#'(' ")&' 1%' '&!&++$,?' 8#,'
")&' 51,2#+&+' #8' ") +' !"' $+' * --' 2,#(1!&' $' 1'(' $%#1'" '.' "#' 4&'
' *' ' *' 12#"' ")&' 1%' +#' @#,,#*&(' @?' ")&' +$ ('
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#%% ++ #'&,+' +)$--' $''1$--?' $22,#2, $"&6' +&"' 2,"6' $'(' '4&+"' $"'
")&') .)&+"' $"&' #8' '"&,&+"' *) !)' !$"' @&')$(' 8#,' ")&' +$%&' "' ")&'
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$' ':'.' 1'(6' $22- !$@-&' $'(' "#' @&' $22- &(' @?' ")&%' 8,#%' %&' "#'
%&' "' ")&' &2$?%&'"' #8' ")&' #'&?' @#,,#*&(6' 1'" -' ")&' 3&@"' +)$--'
@&' &9" '.1 +)&('] 5,#4 (&(' $-*$?+6' ")$"' +1!)' $(("#'$-' ++&++%&'"'
+)$--' '#"' '!,&$+&' ")&' *)#-&' ++&++%&'"' -&4 $@-&' @&?#'(' ")&' %$9 %1%'
$"&' #8' ++&++%&'"6' "#' @&' 8 9&(' $"' ")&' 8 ,+"' &&" '.' 8#,' 8 9 '.' ")&'
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$'?' #'&?' +#' @#,,#*&(6' @1"' $--' +1!)' @- .$" #'+' +)$--' @&' (&&%&(' $'('
"$:&'' "#' @&' .,$'"&(' #"' ")&' +#-&' &!1, "?' #8' ")&' $"&+' $'(' ++&++%&'"+'
$1")#, L&(' "#' @&' $++&++&(' $'(' -&4 &(' $+')&,& 'B@&8#,&' 2,#4 (&(

< ' '(' @&' "' &'$!"&(')$"' $--' #'(+' 8#,' ")&' #' &+' "#' E' 3 ' #GE'
@&' @#,,#*&(' $+' $8#,&+$ (' +)$--' @&' + .'&(' @?' ")&' ,&$+1,&,' #,' #--&!"#,' 3 'OD' 4/2#3DG!'
#8' ")&' +$ (' #%% ++ #'&,+' "' 5,&+&'!&' #8' *#' #8' ")&' +$ (' #%% +B'
+ #'&,+6' *)#' +)$--' + .' $+' E "'&++&+' ")&,&"#6' $'(' +)$--' @&' "' ")&' #,%'
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U' 1%@&,' H& ' ' '9 *" QH,
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> ' 6' ,'(,' H ' ' $ '5 ' ' ' ' " '
#8' ")&' #%% ++ #'&,+' #8' 5#- !&' 8#,' ")&' 1,.)' #8' H& ' ' '
9 * ' ' ' (QH' $'(' @?' 1")#, "?' #8' +$ (' #%% ++ #'&,+6' "'
!#'+ (&,$" #"' #8' ")&' 1%' #8' H& ' ' ' *' ' / #V '+"$'"-?'
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8#,' ")&' 51,2#+&+' #8' ")&' +$ (' !"6' @?' ,'','#8' .,' (#')&,&@?' @ '(' $'('
#@- .&' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' %&' @&' '.6' #1"' #8' ")&' 8 ,+"'
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%&'"+' @?' ")&' +$ (' !"' $1")#, L&(' "#' @&' %2#+&(' $'(' -&4 &(6' "#' 2$?'
$"' ")&' &,%' H '5 *' '> * V' "#' ")&' +$ (' ,',') +' 9&!1"#,+'
#,' ++ .'&&+6' ")&' +$ (' 1,$' #8' W ' ' ' *QV' * ")' ")&' '"&,&+"'
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8,#%' ")&' 3$"&')&,&#86' " --' ")&' +$ (' 1%' +' 2$ (' ' $'(' 8#,' ")&' 81,")&,'
&!1, "?' #8' ")&' +$ (' ,',' ' (#')&,&@?' $++ .' "#') %6') +' 9&!1"#,+'
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+$ (' 4%' +#' '#*' 2$ (' "#' %&6' $'(' ")&' '"&,&+"' "#' @&!#%&' (1&'
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#1'! -' $'(' &++#'6' #,' #")&,' ##:+' !#%2&"&'"' 8#,' 5,&+&,4$"#'6'
")$"' $ '!#%2&"&'"' 3 - .&'!&' %$?' 2$++' $'(' @&' (,&!"&(')&,&#'' ''
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,$?' 5,#!1,$"#,+6' '' * "'&++' *)&,&#8' ')$4&' +1@+!, @&('
")&+&' 5,&+&'"+6' *, ""&'' @?' $"
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Ú &8#,&' ")&+&' E "'&++&+6 Ú ,(&
Ú 0,' ,' #%% ++#'&,
Ú ,9,' #%% ++#'&, ;

'(' "--' &2$?%&'"' +1!)' #'(+' ,&+2&!" 4&-?' +)$--' 8#,%' $' &'' #''
")&' $"&+' $'(' #' &+' .,$'"&(' @?' ") +' !"6' $'(' $++ .'&(' @?' +1!)'
#'(6' $'('+)$--' &'" "-&' ")&' ,&("#,' 1'(&,' ")&' +$%&' "#' ,&!#4&,' +1!)'
5, '! 2$-' 1%+' 8,#%' +1!)' #%', ++#'&,+' $'(' ")&,' 88 !&,+6' #1"' #8'
")&' 8 ,+"' $'(' ,&$(&+"' #8' ")&' $"&+' $2(' #' &+' $++ .'&(

#GE' 026'
OD3/2#E.D//DG'
'&'"7^7A7'

' '(' @&' "' &'$!"&(')$"' +1!)' #'(+' %$?' @&' $++ .'&(' @?'
'(#,+$"#'' #'' ")&' $!:' #8' +1!)' #'(6' '' ")&' #,%' $'(' &'#,'
8#--#* '.'

Á U ,' ' (#' ",$'+8&,' ") +' #'(6' * ")' $--' .)"6' "-&6' #,' '"&,&+"'
Ú *) !)' ')$4&' 1'(&,' ")&' +$%&6' "#' .'1,') +' h#,')&,' ' ")& ,6' '
S ' '* ' ' 9&!1"#,+' $'(' ++ .'&&+' '' * "'&++' *)&,&#8' '
Ú)$4&' +1@+!, @&(' ")&+&' 5,&+&'"+6' *, ""&'' @?' $"
Ú ")&' 3$?' #8
Á &8#,&' ")&+&' E "'&++&+6' Ú X .'&([' 'k[;
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#GE' 3 ' OD'
/DH /GDG!' 2#G'
3 EE,4#23, #E'
"' D /D4 E^
3D/DG

' '(' @&' "' &'$!"&(6')$"' @&8#,&' +1!)' #'(+' +)$--' @&'
(&- 4&,&(' "#' ")&' ,&("#,6' #,' +)$--' 8#,%' $ 4$- (' &'' #'' ")&' $"&+'
#5 &+' $+' $8#,&+$ (6' ")&' +$%&' +)$--' @&' ,&!#,(&(' '' ")&' &(&,1'"'
##:' #8' ")&' +$ (' #%% ++#'&,+6' $'('$' &," 8 !$"&' #8' +1!)' &. +",$N
"#'' +)$--' @&' '(#,+&(' #'' +1!)' #'(6' $'(' + .'&(' @?' ")&' -&,:' #8' ")&'
+$ (' #%% ++#'&,+' $'(' +1!)' ++ .'$"#'+' +)$--' @&' '#" 8 &(' "#' ")&'
,&$+1,&,' #8' ")&' +$ (' #%% ++#'&,+6' *)#' +)$--' &'"&,' '' ")&' +$ ('
&(&,1'"' ##:' ")&' 3$"&' #8' ")&' +$ (' ++ .'$"#'6' ")&' $%&+' #8' ")&'
5$," &+' ")&,&"#6' ")&' 1%@&,' #,' $,:' #8' +1!)' #'(6' $'('")&' '"&,&+"'
(1&' #'' ")&' +$%&' ' $'(' $' &," 8 !$"&' #8' +1!)' '",?' +)$--' @&' '(#,+&('
#'' ")&' +$ (' #'(6' $'(' + .'&(' @?' ")&' ,&$+1,&,' ' $'(' ")&,&$8"&,' ")&'
++ .'&&6') +' 9&!1"#,+' $'(' ++ .'&&+6' +)$--' @&' &'" "-&(' "#' ")&' 81--'
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' '(' @&' "' &'$!"&(6')$"' ") +' !"' +)$--' '#"' &9"&'(' #,'
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#!$-' !"' 8#,' ,&.1-$" '.' ")&' 5#- !&' ")&,&#86' #,' $'?' #")&,' #8' ")&'
51,2#+&+' #8' ") +' !"6' 1'-&++' +1!)' 1,.)' +)$--' $(#2"' ")&' +$%&' ''
*)#-&' #,' '' 2$,"' '' %$'&,')&,& '' 2,#4 (&(' ' $'(' 12#''+1!)' (#2" #''
+1!)' #!$-' !"6' $'(' $--' ")&' 5#*&,+' $'(' 5,#4 + #'+' ")&,&#86' +)$--'
")&,&12#'' !&$+&' $'(' (&"&,% '&' '' +#' 8$,' $+' +1!)' 5#*&,+' $'(' 5,#N
4 + #'+' ,&.1-$"&' #,' ,&-$"&' "#' $'?' #8' ")&' '(+' $'(' 51,2#+&+' 2,#4 (&(
.'/

8#,' @?' ") +' !"6' $'(' +#' $(#2"&(' +$4 '.' $-*$?+' ")&' 5#*&,+' $'(' 5,#4 + #'+' '' ,&-$" #'' "#' E $"&,')&,& '' !#'"$ '&(' ' $'(' ") +' !"6' #,' +#' %1!)' ")&,&#8' $+' +)$--' @&' +#' $(#2"&(6' +)$--' ")&,&$8"&,' !#%&' '"#' 81--' #,!&' $'(' 2&,$" #'6' $'(' +)$--' @&' &9&!1"&(' '' ")&' $''&,')&,& '' 2,#4 (&(

' 5,#4 (&(' $-*$?+6' $'(' @&' '' &'$!"&(')$"' *)&,&' *#' #,' %#,&' 1,.)+' -#!$--?' + "1$"&(' "#.&")&,6' $'(' (&+!, @&(' '' ")&' +$ (' ,&! "&(' !"' #8' ")&' ,+"' $'(' &!#'(' &$,' #8' ")&' & .'' #8' +' $>&+"?' D '.' / *' ")&' #1,")' $+' '&' 5$,- $%&'"$,?' 1,.)6' +)$--' +&4&,$--?' @&' 2#++&++&(' #8' #!$-' !"+' ,&.1-$" '.' ")&' 5#- !&' #8' +1!)' 1,.)+' +&2$,$"&-?6' '' +)$--' '#'' @&' !#%2&"&''' #,' -$*81-' '' +1!)' $+&' 8#,' ")&' ')$@ "$'"+' #8' $'?' +1!)' 1,.)+' "#' %$:&' $'?' +1!)' 22- !$" #'' $+' +')&,& 'B@&8#,&' $1")#, L&(' 8#,' $(#2" '.' ")&' 5,#4 + #'+' #8' ") +' !"6' #,' "#' $((' "#' ")&' +$%&' '' *)#-&' #,' '' 2$,"6' 1'-&++' ")&' 5&,+#'+' '' &$!)' +1!)' 1,.)6' C1$- 8 &(' $+' $8#,&+$ (6' +)$--' 1'$' %#1+-?' $.,&&' +#' "#' (#

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(7D/]E' .'3"D' +D2HD' .' +/ #H C27 36' .'@27DE' 3 ' O/ #4' 3 '3"D' +72HD' ."D2/ ' #4' +D3 3 #E!' 3"D' * I C7 H23D' .'+D3 3 #!' H"DG I 7D!' H

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+1$.&+6A' 1 -(' .+6' $ ' (+6' & '&%& '"+6' $ ' (' &,&("$%& '"+' X#")&,'
")$'' $ ' (' &9!&2'' $+' $8#,&+$ ([' *) !)' +)$--' $'' $ '?' %&' #,' %&+'
)&,&$8"&,' @&' 21,!)$+&(' 8#,' ")&' V+&' $ ' (' &,4 !&' #8' +' $>&+"?;+'
1+"#%+6' * ")' ")&' .)"+6' &%@&,+6' $+&%&'"+6' $ ' (' 221,"&'$'!&+'
"9[' ")&' +$%&' ,&+2&!" 4&->' @&-#' . ' .6' +)$--' '' - :&' $ ' '&,' @&' $ ' ('
@&!#%&' $ ' (' ,&%$ '' $ ' (' !#'" '1&' <&+"&(' '' ")&' &!,&"$,?' 8#,' ")&'
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!,&"$, &+' '' +1!)' &,4 !&6' $! !#,(' .' "#' ")&' ,&+2&!" 4&' $"1,&' $ ' ('
' T1$- "?' #8' ")&' +$ (' $'#,+6' &++1$.&+6' 1 -(' .+6' $ ' (+6' & '&N
%&'"+6' $ ' (' &,&("$%&'"+6' $ ' (' ")&' +&4&,$-' +"$"&+' $ ' (' '"&,&+"+' #8'
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DH/D32/6!' I#GD/' I3" ' / 36' .' (0' ' 0 EE #D/E!' O 26' ED77' /' 7D3' 2#GE' FDE3DG' #' 3"D O

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)#-(' $ ' (' &$+&)#-(' $'#,+6' &++1$.&+6' 1 -(' .+6' $ ' (+6' & '&N
%& '"+6' $ ' (' &,&("$%& '"+' ,&+2&!" 4&-?' *) !)' +)$--' 8#,' ")&' %&' @& ' .'
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)&,6' #,' ")& ,' & ,+' $ ' (' ++ . '+6' '' ,1+'' 8#,' +' +$ (' $>&+"?' #,' $ '?' #8'
+' 5,&(&!&++#,+6' +' #,')& ,' & ,+' #,' 1! !&++#,+6' 8#,' ")&' V+&' $ ' ('
&,4 ! (#8' +' $>&+"?;+' 1+"#%+' '' ")&' +$ (' V ' "&(' D ' . (#%6' #,' $ '?' #8'
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!,&"$,?' 8#,' ")&' %&' @& ' .6' $ ' (' $+' "#' ")&' +$ (' #2?)#-(' &++1$.&+6'
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$ '?' #8' ")&%6' $+' ")&' $+&' %$?' ,&C1 ,&6' "#' $ '?' 5&,+#'' #,' 5&,+#'+' *)#'
+)$--' @&' * -- ' .' "#' 21,!)$+&' #,' "$:&' ")&' +$%&' ,&+2&!" 4&-?6' $ ' (' $-+#'
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'"#' 8#,' ")&' $-&' #8' $ '?' +1!)' ,&&)#-(6' #2?)#-(6' #,' &$+&)#-('
&++1$.&+6' $ ' (+6' & '&%& '"+6' #,' &,&("$%& '"+' $+' $8#,&+$ (6' * ")'
+1!)' -"&,$" #'+' #,' <$, $" #'+' $+' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&'
%&' @& ' .6' #,' $ '?' *#' #,' %#,&' #8' ")&%6' +)$--' @?' E , " ' .' 1 ' (&,'
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&,&("$%& '"+' *) !)' +)$--' @?' ")&' $ (' #%% ++ #'&,+' @&' (&&%&('
@&'&8 ! $-' 8#,' ")&' 51@- !' &,4 !&' '' ,&-$" #'' ")&,&#86' #,' 8#,' ")&' @&'"&,'
$'$.&%&'' ")&,&#86' $ ' (') !)' % .)"' @&' (#'&' @?' $ '?' 5&,+#'' #,'
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&++1$.&+6' $'(+6' &'&%&'"+6' #,' &,&("$%&'"+' *) !)' +)$-' @&' 2#GE 3 OD'
+#-(' #,' &9!)$'.&(' #,' !#'4&?&(' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' 2,&+&'" C2 G' 3 ' 3"D'
!"6' '!-1('.' ")&' #' &+' $-,&$(?' 2$ (' @?' *$?' #8' 3&2#+ " 8#,' ")&' =DHD FD/'
51,!)$+&' #8' $'?' &,&("$%&'"+' $-,&$(?' !#'",$!"&(' "#' @&' +#-(6' $'(' /D#D/27'
")&' &+ (1&' #8' ")&' #' &+' "#' @&' ,&!& 4&(' ' ,&+2&!" #,' #' $!!#1'" #8
+1!)' #'",$!"6' +)$-' @&' 2$ (' @?' ")&' ,&+2&!" 4&' 51,!)$+&,' #,' 51,N
!)$+&,+' ")&,&#86' #,' ")&' 5&,+#' #,' 5&,+#'+' %$: '.' +1!)' 9!)$'.&6'
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@& '.6' #,' "#' +1!)' 5&,+#' #,' 5&,+#'+' $+' ")&' +$ (' #%% ++ #'&,+' 8#,'
")&' %&' @& '.6' #,' $'?' #1,' #,' %#,&' #8' ")&%6' +)$-' (,&!" #,' $22# '"
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!&++#,+6' 8#,' ")&' V+&' $'(' &,4 !&' #8' ")&' +$ (' 1+"#%+' $'(' ")$" ")&'
&!& 2" #8' ")&' +$ (' &!& 4&,' H&'&,$-6' #,' +1!)' #")&,' 5&,+#' #,' 5&,N
+#'+' $+' $8#,&+$ (6' 8#,' +1!)' #' &+6' X+1!)' &!& 2" "#' @&' &'(#,+&(' #"
&4&,?' +1!)' #'4&?$'!&6' 1,,&'(&,6' #,' ++ .'%&'" $+' $8#,&+$ (6[' +)$--
&88&!"1$--?' (+!)$,.&' ")&' 51,!- $+&,' #,' 51,!)$+&,+6' #,' 5&,+#' #,' 5&,N
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&4&,?' +1!)' #'4&?$'!&6' 1,,&'(&,6' $'(' ++ .'%&'" $+' $8#,&+$ (6' ")&' +"$'(_#+'
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>1(.&(' "#' +"$'(' +& +&(' $'(' 2#++&++&(' #8' ")&' <$'#,+6' &++1$.&+6' $'(+6' Z!'
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#,' ")&%' ,&+2&!" 4&-?6' 8,&&(' $'(' $@+#-1"&-?' (+!)$,.&(' #8' $'(' 8,#%' $--'
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,1+" 8#,' +' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' #' $'?' $!!#1'"
*)$"+#&4&,6' +$4&' $'(' &9!&2" +1!)' +"$"&+6' &$+&+6' .)"+6' "-&+6
'"&,&+"+6')$,.&+6' '!1%@,$'!&+6' -$%+6' $'(' 3&%$'(+6' 8' $'?6' $+
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,&$+1,?' 8#,' ")&' %&' @& '.' 8,#%' %&' "#' %&6' @?' $'?' E, " '.' +6S4&?' $'('
1'(&,' ")&,' $'(+6' "#' $1")#, L&' $'?' 5&,+#' #,' 5&,+#'+' "#' +1,4&?' $'(' 02/]' I3'
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8,#%' ")&' +$%&6' #,' $'?' #,' & ")&,' #8' ")&%6' +1!)' $'(+' @& '.' + "1$"&('
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G DEʻ + 7 ^ 3 H!ʻ Hʻ O26ʻ H #3/2H3ʻ . /ʻ 3"Dʻ 27D

< ʻ '(ʻ @&ʻ "ʻ 81,")&,ʻ &'$!"&(6ʻ)$"ʻ "ʻ +)$--ʻ @&ʻ -$*81-ʻ 8#,ʻ $--ʻ #(&+ʻ 5@- " !ʻ #,ʻ #,2#,$"&6ʻ !!-&+ $+" !$-ʻ #,ʻ 4 -6ʻ $'(ʻ $--ʻ &#88&&+ʻ #,ʻ ,1+"&&+ʻ 8#,ʻ !)$, "$@-&ʻ #,ʻ #")&,ʻ 21@- !ʻ 51,2#+&+6ʻ $'(ʻ 8#,ʻ $--ʻ &'$'"+ʻ 8#,ʻ 8&ʻ $'(ʻ &'$'"+ʻ 'ʻ $ -6ʻ $'(ʻ 8#,ʻ ")&ʻ 1+@$'(+6ʻ H1$,N ($'+6ʻ ,1+"&&+6ʻ #%% ""&&+6ʻ 1,$"#,+6ʻ #,ʻ "" % &+ʻ #8ʻ +1!)ʻ #8ʻ ")&ʻ *'&,+ʻ #,ʻ 5,#2, &"#,+ʻ #8ʻ #,ʻ 5&,+#'+ʻ '"&,&+"&(ʻ 'ʻ $'?ʻ +1!)ʻ $'(+6ʻ &++1$.&+6ʻ &'&%&'"+6ʻ &,&("$%&'"+6ʻ #,ʻ 5,&% +&+ʻ ,&C1 ,&(ʻ 8#,ʻ +1!)ʻ 51@- !ʻ &,4 !&ʻ $+ʻ +)$--ʻ @&ʻ &%&+ʻ #4&,"6ʻ '8$'"+6ʻ 1'$" !+6ʻ (#"+6ʻ #,ʻ 5&,+#'+ʻ @&?#'(ʻ ")&ʻ &$+6ʻ #,ʻ #")7* +&ʻ '!$2$@-&ʻ Z $!" '.ʻ 8#,ʻ ")&%+&-4&+6ʻ "#ʻ !#'",$!"ʻ $'($.,&&ʻ * ")ʻ +1!)ʻ 5&,+#'ʻ #,ʻ 5&,+#'+ʻ $1")#, L&(ʻ $+ʻ $8#,&+$ (ʻ 8#,ʻ ")&ʻ H,$'"ʻ #8ʻ $'?ʻ &$+&ʻ #8ʻ +1!)ʻ $'(+6ʻ &++1$.&+6ʻ &'&%&'"+6ʻ &,&("$%&'"+6ʻ #,ʻ 5,&% +&+6ʻ & ")&,ʻ 8#,ʻ $'?ʻ &,%ʻ #8ʻ &$,+ʻ !&,"$ 'ʻ ")&,& '6ʻ #,ʻ 8#,ʻ +1!)ʻ 5&, #(+ʻ $+ʻ ")&ʻ 51@- !ʻ &,4 !&ʻ +)$--ʻ ,&C1 ,&6ʻ $'(ʻ "#ʻ (&% +&ʻ #,ʻ .,$'"ʻ ")&ʻ $%&ʻ V'"#ʻ ")&ʻ +$ (ʻ #,(ʻ .)ʻ ,&$+1,&,ʻ #,ʻ #%% ++ #'&,+ʻ #8ʻ +ʻ $>&+"?;+ʻ ,&$+1,?6ʻ 'ʻ ,1+"ʻ 8#,ʻ +ʻ $>&+"?6ʻ +ʻ &,+ʻ $'(ʻ 1!!&++#,+6ʻ $!!#,(ʻ '.-?ʻ $'(ʻ $--ʻ +1!)ʻ &$+&+ʻ $'(ʻ .,&&%&'"+ʻ +)$--ʻ @&ʻ 4$- (ʻ $'(ʻ &88&!"1$-ʻ 'ʻ $*ʻ "#ʻ $--ʻ '"&'"+ʻ $'(ʻ 51,2#+&+ʻ *)$"+#&4&,

+D/E #Eʻ /D^ . IE #4ʻ 3 ʻED77ʻ /ʻ 3 ʻ 2HHDC3ʻ 3"Dʻ (#E GD/^ 23 #ʻ ..D/DGʻ Z ʻ, IE3 HDE!ʻ]Dʻ O26ʻ CI3ʻ > Eʻ B 25DE36aEʻ ' .. HD/Eʻ #3 ʻ + EEDEE #!ʻ 2#Gʻ 2ʻ, I/6ʻ E"277ʻ ODʻ EI O^ O #DG!ʻ Z" ʻ E"277ʻ. #Gʻ 3"Dʻ (OCD#E2^ 3 #ʻ 3 ʻODʻ O2GD

< ʻ '(ʻ @&ʻ "ʻ 81,")&,ʻ &'$!"&(ʻ)$"ʻ 'ʻ !$+&ʻ $'?ʻ +1!)ʻ #(&+ʻ #,ʻ #")&,ʻ 5&,+#'+ʻ)&,&@?ʻ $1")#, L&(ʻ "#ʻ !#'",$!"ʻ #'ʻ @&)$-8ʻ #8ʻ ")&%+&-4&+ʻ #,ʻ ")&,+ʻ $+ʻ $8#,&+$ (6ʻ #,ʻ $'?ʻ ")&,ʻ 5&,+#'ʻ #,ʻ 5&,+@'+6ʻ 'N "&,&+"&(ʻ 'ʻ $'?ʻ +1!)ʻ $'(+ʻ +#ʻ %$,:&(ʻ #1"ʻ ,ʻ 'ʻ $'?ʻ &++1$.&+6ʻ &'&%&'"+6ʻ &,&("$%&'"+6ʻ #,ʻ 5,&% +&+ʻ ,&C1 ,&(ʻ $+ʻ $,#,&+$ (6ʻ +)$--ʻ 8#,ʻ ")&ʻ 2$!&ʻ #8ʻ #1,"&&'ʻ 3$?+ʻ '&9"ʻ $8"&,ʻ #"!&ʻ 'ʻ E, "'.ʻ +1@N +!, @&(ʻ @?ʻ +1!)ʻ 5&,+#'ʻ #,ʻ 2&,+#'+ʻ $1")#, L&(ʻ $+ʻ $8#,&+$ (ʻ +)$--ʻ)$4&ʻ @&&'ʻ . 4&'ʻ "#ʻ ")&ʻ 2, '! 2$-ʻ 88 !&,ʻ ,ʻ 88 !&,+ʻ #8ʻ $'?ʻ +1!)ʻ #(?6ʻ #,ʻ "#ʻ +1!)ʻ #")&,ʻ 5&,+#'+ʻ)&,&@?ʻ $1")#, L&(ʻ "#ʻ !#'",$!"ʻ #'ʻ @&)$-8ʻ 8ʻ #")&,+6ʻ #,ʻ '"&,&+"&(ʻ ")&%+&-4&+ʻ $+ʻ $8#,&+$ (6ʻ #,ʻ -&8"ʻ $"ʻ)+6ʻ)&,6ʻ #,ʻ ")&,ʻ 1+1$-ʻ 5-$!&ʻ #8ʻ @#(&6ʻ ,&81+&ʻ #,ʻ (&!- '&ʻ "#ʻ ",&$"ʻ #,ʻ $.,&&6ʻ #,ʻ @?ʻ ,&$+#'ʻ #8ʻ @+&'!&ʻ +)$--ʻ @&ʻ 2,&4&'"&(ʻ 8,#%ʻ ",&$"ʻ '.ʻ #,ʻ $.,&&ʻ '.6ʻ *")ʻ +1!)ʻ 5&,+#'ʻ #,ʻ 5&,+#'+ʻ $1")#, L&(ʻ $+ʻ $8#,&+$ (6ʻ #,ʻ +ʻ -ʻ ,%1+&ʻ "#ʻ $!!&2"ʻ +1!)ʻ $''1$-ʻ &'"ʻ #,ʻ 1%ʻ $+ʻ +)$--ʻ @&ʻ #88&,&(ʻ 8#,ʻ ")&ʻ ,&ʻ ")&,&#86ʻ &")&,ʻ 8#,ʻ $ʻ %&ʻ !&,"$ 'ʻ #,ʻ 8#,ʻ +1!)ʻ 5&, #(ʻ $+ʻ ")&ʻ 51@- !ʻ &,4 !&ʻ %$?ʻ ,&C1 ,&6ʻ $'(ʻ 'ʻ !$+&ʻ $-+#ʻ "ʻ +)$--ʻ @&ʻ 2,$!" !$@-&ʻ "#ʻ 2,#1,&6ʻ @?ʻ 4#-1'"$,?ʻ $,.$ 'ʻ 2,ʻ $-&6ʻ $'?ʻ #")&,ʻ $'(ʻ +ʻ + "1$"&ʻ $+ʻ $8#,&+$ (6ʻ #8ʻ $'?ʻ &++1$.&+6ʻ &'&%&'"+6ʻ &,&("$%&'"+6ʻ #,ʻ 5,&% +&+ʻ ,&C1 ,&(ʻ $+ʻ $8#,&+$ (6ʻ $'(ʻ +1 "&(ʻ "#ʻ ")&ʻ 51,2#+&ʻ 8#,ʻ *) !)ʻ +1!)ʻ $'(+6ʻ &++1$.&+6ʻ &'&%&'"+6ʻ &,&("$%N %&'"+6ʻ #,ʻ 5,&% +&+ʻ $,&ʻ ,&C1 ,&(6ʻ ")&'ʻ $'(ʻ 'ʻ +1!)ʻ !$+&ʻ $'(ʻ 'ʻ +)$--ʻ @&ʻ -$*81-ʻ 8#,ʻ *#ʻ #,ʻ %#,&ʻ R1+" !&+ʻ #,ʻ),&&ʻ #,ʻ %#,&ʻ 3&21"?ʻ &1"&N '$'"+ʻ X#'&ʻ #8ʻ *)#%ʻ +)$--ʻ @&ʻ $ʻ R1+" !&ʻ #8ʻ ")&ʻ 5&$!&[6ʻ #,ʻ *#ʻ #,ʻ %#,&ʻ 3&21"?ʻ H#4&,'#,+ʻ 8#,ʻ ")&ʻ #1'"?6ʻ ('.6ʻ "&*$,",?6ʻ "?6ʻ #,ʻ 5-$!&ʻ *)&,&ʻ 'ʻ +1!)ʻ $'(+6ʻ &'&%&'"+6ʻ &++1$.&+6ʻ &,&("$%&'"+6ʻ #,ʻ 5,&% +&+ʻ +)$--ʻ @&6ʻ "#ʻ 21"ʻ +ʻ $>&+"?;+ʻ 88 !&,+ʻ 2#++&++ #'ʻ #8ʻ +1!)ʻ $'(+6ʻ &++1$.&+6ʻ &'&%&'"+6ʻ &,&("$%&'"+6ʻ #,ʻ 5,&% +&+6ʻ $'(ʻ 8#,ʻ ")$"ʻ 51,2#+&ʻ "#ʻ ++1&ʻ $ʻ E$,,$'"ʻ 1'(&,ʻ ")&,ʻ $'(+ʻ $'(ʻ &$-+6ʻ ,&C1 ,'.ʻ '.5#++&++ #'ʻ "#ʻ @&ʻ (&- 4&,&(ʻ "#B+1!)ʻ #8ʻ +ʻ $>&+"?;+ʻ 88 !&,+ʻ $+ʻ +)$--ʻ @&ʻ '$%&(ʻ 'ʻ ")&ʻ E$,,$'">ʻ $'(ʻ "ʻ +)$--ʻ $-+#ʻ @&ʻ -$*81-ʻ 8#,ʻ $'?ʻ 1!)ʻ 5&,+#'ʻ #,ʻ 5&,+#'+ʻ $1")#, L&(ʻ $+ʻ $8#,&+$ (ʻ "#ʻ ,&C1 ,&ʻ ")&ʻ +$ (ʻ R1+" !&+6ʻ 3&21"?ʻ &1"&'$'"+6ʻ #,ʻ 3&21"?ʻ H#4&,'#,+ʻ #8ʻ +1!)ʻ #1'"?6 ('.6

1 $ B ' ' (2C V W

(' .6' "&*$," ?6' "?6' @&,"?6' #,' 5-$!&6' "#' ++1&' ")& ,' E $,,$'" "#' ")&')&, 88' #,')&, 88+' #8' ")&' #1'"?6' (' .6' "&*$,",?6' "?6' #,' 5-$!&' *)&,& '' +1!)' $'(+6' &++1$.&+6' &'&%&'"+6' &,&("$%&'"+6' #,' 5,&% +&+' +)$--' @&' + "1$"&6' "#' +1%%#'' $' R1,?' $'(' &4&,?' +1!)')&, 88' #,')&, 88+' +' $'(' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' "#' +1%%#'' $'(' ,&"1,'' $' R1,?6' 2,#2&,-?' C1$- 8 &(6' #8' ")&' 1%@&,' #8' *&'"?B8#1,6' $'(' '' ")&' $''&,' ,&C1 ,&(' @?' ")&' $*+' #8' .

' $'(' ' ,&+2&!" 4&-?6' *)#' +)$--' %&&'' $"' +#%&' !#'4&N ' &''' %&' $'(' 5-$!&' "#' @&' %&'" #'&(' '' +1!)' 1%%#'+6' #1"' #8' *)#%' $' R1,?' #8' *&-4&' +)$--' @&' (,$*'' '' +1!)' $''&,' $+' R1, &+' 8#,' ")&' , $-' #8' ++1&+'># '&(' '' +' $>&+"?;+' #1,"+' $"' / * ' $'(' ' " ' $,&' (,$*'' @?' $*' '' . ' #,' ' ,&+2&!" 4&-?6' $'(' '' +1!)' $''&,' $+' R1, &+' $,&' (,$*'' @?' $*' 8#,' ")&' , $-' #8' 88&'!&+' '' -' $'(' '' !$+&' $' +188 ! &'' 1%@&,' +)$--' '#'' $22&$,6' ")&')&, 88' #,')&, 88+' +)$--' !)##+&' #")&,+' #8' ")&' ?B+"$'(&,+6' #,' ")$'' !$'' +2&&(-?' @&' 2,#!1,&(6' @&' '.' C1$- 8 &(' $+' $8#,&+$ (' $'(' ")&' +$ (' R1,?%&'' %$?' @&' !)$--&'.&(' @?' ")&' 5$," &+' #'' & ")&,' (&6' @1'' '#'' ")&' ,,$?' ' $'(' ")&' +$ (' R1+" !&+6' 3&21"?' &1"&'$'"+6' #,' 3&21"?' H#4&,'#,+' ,&+2&!" 4&-?6' #'' ")&' 22- !$" #'' #8' ")&' +$ (' 5&,+#'+' +#' $1")#, L&(6' #,' #8' $'?' 5$," &+' !#'!&,'&(6' %$?' $'(' +)$--' +1%%#'' E "'&++&+6' $'(' $(>#1,'' $'?' +1!)' &&' '.' 8' R1,?%&'' #,' E "'&++&+' (#' '#'' $""&'(' $'(' ")&' R1,?6' #'')&$, '.' $'?' E "'&++&+' $'(' 4 (&'!&' ")$'' %$?' @&' 2,#(1!&(6' +)$--' #'' ")&,' $")+' X*) !)' $")+6' $+' $-+#' $+' ")&' $")+' #8' +1!)' E "'&++&+6' ")&' +$ (' R1+" !&+6' 3&21"?' &1"&'$'"+6' #,' 3&21"?' H#4&,'#,+' ,&+2&!" 4&-?' $,&')&,&@?' &%2#*&,&(' $'(' ,&C1 ,&(' "#' $(% ' +"&,6[' 8 '1' ")&' #%2&'+$" #'' "#' @&' 2$ (' 8#,' ")&' 5#++&++ #'' #,' V+&' #8' +1!)' $'(+6' $+' ")&' $+&' %$?' @&

< ' 5,#4 (&(' $-*$?+6' $'('@&' "81,")&,' &'$!"&(')$"' 8")&' 2#GE' 23' *'&,' #,' *'&,+' #8' $'?' $'(+6' &++1$.&+6' &'&%&'"+6' &,&("$B' 7@7$:&'' %&'"+6' #,' 5,&% +&+' +#' ,&C1 ,&(6' #,' $'?' 5&,+#'' #,' 5&,+#'+' '"&,&+"&(' ='7 &8#8 ")&,& '6' +)$--' $" $'?' %&' @&8#,&' ")&' +1%%#' '.' #8' +1!)' R1,?' $+' EIH"' #E' "2/D' $8#,&+$ ('. 4&' #" !&' '' E , " '.' #8' $'?' #")&,' $'(+' + "1$"&' $+' $8#,&N ODD#' O2/]DG' +$ (6' $'(' #8' $'?' #")&,' &++1$.&+6' &'&%&'"+6' &,&("$%&'"+6' #,' I3 5,&% +&+' +#' ,&C1 ,&(' $+' $8#,&+$ (6' $'(' +1 "&(' "#' ")&' 51,2#+&' 8#,' *) !)' +1!)' $'(+' $,&' ,&C1 ,&(6' $'(' *) !)' ")&' *'&,' #,' *'&,+' ")&,&#8' #,' 5&,+#'+' '"&,&+"&(' ")&,& '' $,&' * -- '.' "#' ",&$" $'(' $.,&&' 8#,6' ")&'' $'(' '' +1!)' $+&' ")&' R1 7' +#' "#' @&' +1%%#'&(' +)$--' 2,&N 4 #1+-?' 8 '(' ")&' $!"+6' *)&")&,' ")&' $'(+' +#' '(!$"&(' '' +1!)' #" !&' $,&' + "1$"&' * ") '' ")&' 3 +"$'!&' $8#,&+$ (6' $'(' $,&' +1 "&(' "#' ")&' 51,N 2#+&' 8#,' *) !)' +1!)' $'(+6' &'&%&'"+6' &++1$.&+6' &,&("$%&'"+6' #,' 5,&% +&+' %$?' @&' ,&C1 ,&(6' $'(' *)&")&,' ")&' *'&,' #,' *'&,+' ")&,&#8' #,' 5&,+#'+' '"&,&+"&(' ")&,& '' $,&' * -- '.' "#' ",&$" $'(' $.,&&' 8#,' ")&' +$%&' $'(' 8")&?' +)$--' +#' 8 '(6' ")&' *'&,' #,' *'&,+' #8' #,' 5&,+#'+' '"&,&+"&(' ''")&' $'(+' +#' +1,4&?&(' #,' %$,:&(' #1" $+' $8#,&N +$ (6' #,' #8' ")&' &++1$.&+6' &'&%&'"+6' &,&("$%&'"+6' #,' 5,&% +&+' +#' ,&C1 ,&(6' +)$--' '#'' @&' !#%2&--$@-&' @?' 41 "1&' #8' ") +' !'' "#' +&V #,' (+2#+&' #8' ")&' +$%&] 5,#4 (&(' $-*$?+6' ")$'' *)&,&' ")&' *%&,' #,' *'&,+' #8#,' 5&,+#'+' '"&,&+"&(' '' $'?' $'(+6' &++1$.&+6' &'&%&'"+6' &,&("$%&'"+6' #,' 5,&% +&+' ,&C1 ,&(' @?' 4 "1&' #8' ") +' !'' "#' @&' . 4&'' 12' 8#,' ")&' 51,2#+&+' $8#,&+$ (6' +)$--' 2,&8&,' "#' +&--' ")&' +$%&' #1", .)"6' $'(' +)$--' @&' $@-&' "#' %$:&' $' .##(' "-&' "#' ")&' &&' %2-&' ")&,&#8

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")&,&#8' "' +)$--' @&' -$*81-' 8#,' ")&%' "#' '+ +' #' ' (# '.' $'(' '
+1!)' $+&' ")&' R1,?' +#+1%%#'&(' $+' $8#,&+$ (' +)$--' 8 '(' ")&' <$-1&' #8'
8)&' &&; %2-&' #8' +1!)' $'(+6' &'&%&'"+6' &++1$.&+6' &,&("$N
%&'"+6' #,' 5,&% +&+6' $'(' ")&' +$%&' +)$--' @&' 2$ (' "#' ")&' *'&,' #,'
*'&8' ")&,&#8' #,' 5&%# +' '"&,&+"&(' ")&,& ' ' ")&' $''&,' (,&!"&('
@?' ") +' !" 6 S

.'2#6'+D/E #' OD'G EE23 E. DG' Z 3"' D/G H3!' CCD27' O26' OD' O2GD' 3 ' 3"D' (I/3' .' &H"D\ ID/' # #472#G' /D72#G!' /'3 ' 3"D' (I/3' .' DEE #!' H' #' H 372#G!

' 5,#4 (&(' $-*$?+6' $'(' -&' "' 8 ,")&8' &'$!"((')$"' 8'
")&' +$ (' #,(' .)' ,&$+1,&,6' #,' ")&' +$ (' #%% ++ #'&,+' #8' +'
$>&+"?;+' ,&$+1,?6' #,' $'?' 5&,+#' '' "&,&+"&(' ")&,& '_' +)$--' @&' (+N
+$" +8 &(' * ")' ")&' <&,(!"' #8' $'?' +1!)' R1,?6' "' +)$--' @&' -$*81-' 8#,' ")&%'
#,' ")&,' "#,$ &+' '& ' 8#' $22-?' "#' ")&' #1,8#8'
9!)&C1&,' $"' / * '#,' ' " ' ,&+2&!" 4&-?' ' ")&' -&9"' &,%6'
$'(' ' '"#' $22-?' * ") ' #1,"&&' 3$?+' $8"&,' ")&' 8 '(' '.'
$'?' +1!)' <&,(!"' "#' ")&' #1,"' #8' &++#' ' ' ' %&' #8'
&++#'6' #,' #,(' ,('$,?'#' ")&' --+' ' %&' 28' <$!$" #'6' $'(' "#'
+1..&+"' "#' ")&' +$ (' #1,"+' #,' #,(' ,('$,?' ,&+2&!" 4&-?' ")$"' ")&?'
)$4&' ,&$+#' "#' @&' (++$" +8 &(' * ")' +1!)' <&,(!"6' $'(' 8#,") * ")' "#'
. 4&' #" !&' ")&,&#8' "#' ")&' +$ (' #,(' .)' ,&$+1,&,' #,' #%% +N
+ #'&,+6' #,' 5$,"?' X$+' ")&' $+&' %$?' @&[' ' $'(")&,&12#' ' ' ' $'('
' ")&' 5,#!&&('.+' ")$"' +)$--')$4&' @&&')&(6' $'(' ")&' <&,(!"'
#8' +1!)' R1,?6' +)$--' @&' ,&"1,'&(' '"#' ")&' +$ (6' # ,,"+' #8' 9!)&C1&,'
,&+2&!" 4&-?' >' '(' 8' "' +)$--' $22&$,' "#6' ")&' +$ (' #1,"+' "#' @&' 2,#2&,6'
$' 1..&+" #' +)$--' @&' &'"&,&(' #' +1!)' 5,#!&&(7+' $$' $8#,&+$ (6' $'(' $'
E, "' +)$--' ")&,&12#'6' @?' 1-&' #8' +1!)' #1,"6' #,' ,(&,' #86' $'?'
R1(.&' #8' +1!)' #1,"6' @&' (,&!"&('"#' ")&')&, 88' #8' +1!)' #1'"?' *)&,&'
")& $'(+' +)$--' -&6' #,' ")&' &+ 1$.&+6' &'7&%87' = &,&("$%&'"7'
#,' 5,&% +&+' +)$--' @&6' #,' 8' ")&' +$%&' +)$--' -&' #,' @&' ' *$' #1'" &+6'
"#' ")&')&, 88' #8' &")&,' #8' +1!)' #1'" &+6' "#' +1%%#'6' & ")&,' $ #'-B'
%#' ' #,' 2&! $-' R1,?' $!!#,('.' "#' ")&' 22- !$" #' ' ")$" +)$--')$4&'
@&&' %$(&' #' ")$"' &)$-8' $'(' $+' ")&' #1,"' '.' +1(' R1(.&' +)$--'
$--#*6' $'(' *)#' +)$--' ,&+2&!" 4&-?' @&' C1$- 8 &(' $!!#,('.' "#' $*6' "#'
$22&$,' @&8#,&' ")&' +$ (' R1+" !&' #8' ++ L&' #,' +' 5, 1+' #8' ")$"' #1'"?'
$"' ")&' '&9"' ++ L&+' #,' "" '.+' #8' +' 5, 1+' 8' ")&' +$%&' +)$--' '#"'
)$22&' ' +##'&,' ")$"' ' *&'"?B#'&' 3$?+' $8"&,' +1!)' 1..&+" #'6' #")&,N
*+&' $"' ")&' '&9"' +1!!&&('.' ++ L&+' #,' "" '.+' ' $'(")&' #%2&'+$" #'
"#' @&' 2$ (' 8#,' ")&' 5#++&++#' #,' V+&' #8' +1!)' $'(+6' &++1$.&+6'
&'&%&'"+6' &,&("$%&'"+6' #,' 5,&% +&7' +)$--' $"' +1!)'7 ++ L&+' #,'
"" '.+' @&' $+!&,"$ '&(' @?' +1!)' R1,?' ' - :&' $''&,' $+' $'?' 3$%$.&+'
%$?' @&' 'C1 ,&(' #8' 12#' $'?' 'C1 + " #' #,' 'C1 ,?' #8' 3$%$.&+' @?'
$'?' R1,?' @&8#,&' $'?' R1(.&' #8' ++ L&' #,' + 5, 1+' $'(")&' <&,(C"
#8' +1!)' R1,?' +)$--' @&' ,&"1,'&(' "#' ")&' +$ (' #1,"+' #8' 9!)&C1&,6' $'('
+)$--' @&' 8 '$-' $'(' !#'!-1+ 4&' $'(' ' 8' "B' +)$--' $22&$,'
2,#2&,' "#' ")&' +$ (' #1,"' #8' &++#' #,' #,(' ,('$,?6' 12#,' +1!)'
22- !$" #' +#' "#' (#6' ")&' +$ (' #1,"' #,' ,('$,?' +)$--' #,(&,' $'('
(,&!"' ")&')&, 88' #8' ")&' #1'"?' *)&,&' +1!)' $'(+6' &++1$.&+6' &'&B'
%&'"+' &,&("$%&'"+6' #,' 5,&% +&+' +)$--' -&' $'(' @&&6' #,' 8' ")&' +$%&'
+)$--')&' #,' @&' ' *#' #1'" &+6' ")&')&, 88' #8' & ")&,' #8' +1!)' #1'" &+6'
"#' +1%%#' $'#")&,' R1,?' ' ")&' $'V&$' ' *) !)' R1, &+' $,&' +1%'
%#'&(' 2,#2&,-?' C1$- 8 &(' $!!#,('.' "#' $*6' "#' $22&$,'
@&8#,&' ")&' #,(+' #,' #,(' #8' R1+" ! $,?' $"' ")&' '&9"' ,!1 ' 8' ")&' +$%&'
+)$--' '#"')$22&' ' +##'&,' ")$"' ' *&'"?B#'&' 3$?+' $8"&,6' +1!)' 22- !$N
"#'6' #")&,* +&' $"' ")&' '&:' +1!!&&('.' ,!1 "] $'(")&' #%2&'+$" 22
$+

$+' $8#,&+$ (' 8#,' ")&' $'(6' &++1$.&+6' &'&%&'"+6' &,&("$%&'"+6' K
$'(' 5,&% +&+' +)$--' $"' +1!)' ,!1 "' @&' $+!&,"$ '&(' @?' $' R1,?' (,$*'"
8,#%' ")&' R1,?' +1%%#'&(' $+' $8#,&+$ (' "' +1!)' $''&,' $+' R1, &+' $,&'
(,$*'" "' '1'(&,' ")&' 3 ,&!" #'" #8' ")&' +$ (' #,(+' #,' #,(' #8'
R1+" ! $,?' $+' $8#,&+$ (' ' $'(' ")&' <&,(!" #8' +1!)' -$+"B%&'" #'&(' R1, &+'
+)$--' @&' 8 '$-' $'(' !#'!-1+ 4&6' * ")#1" @& '.' +1@>&!" "#' &4 &*' #,'
)$--&'.&' #8' $'?' D '(6' 1'-&++' ") I' #1," ")$" +)$--')$4&' $--#*&(' +1!)'
'C1 ,?' +)$--' ") ':' 8"6' #'" $'?' 22- !$" #'" %$(&' * ") '" #1,' 3$?+'
$8"&,' ")&' #%%&'!&%&'" #8' ")&' +1!!&&('.' &,%' #,' &++ #'6' 8' "'
'"#' #,(&,' $'?' '&*' , $-' "' ,&-$" #'" ")&,&"#

' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(6')$" "' +)$--' @&' , I/% 7#2EHD/ '
-$*81-' 8#,' $'?' R1,?' %2$'&--&(' @&8#,&' $'?' R1+" !&' &8' ")&' B5&$!&6' (/#'
$. +",$"&6' 3&21"?' &1"&'$'"6' #,' 3&21"?' H#4&,'#,6' #,' @&8#,&'$'?' 5,&%+&+' -#
R1(.&' #8' ++ L&' #,' +' 5, 1+6' "#' $+!&,"$ "' ")&' #%2&'+$" #'" "#' @&' ED I 7D+/ C /'
2$ (' 8#,' $'?' $'(+' 1'(&,' ") +' !"6' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' "#' "#' FJD
$+!&,"$ "' $'(' +&""-&' ")&' 5,#2#," #'" "#' @&' 2$ (' #1" #8' +1!)' #%2&'B' DEEDDE!
+$" #'" "#' $'?' 5&,+#'" #,' 5&,+#'+')$4 '.' $'?' '"&,&+" $+' &++&&+6' #,'
&'$'"+' $" E --6' #,' #")&,* +&6' "' $'?' +1!)' $'(+6' $'(' ")&' 5,#2#," #'"
"#' @&' 2$ (' #1" #8' +1!)' #%2&'+$" #'" +)$--' @&' ,&"1,'&(' #'" ")&' <&,N
(!" ' 5,#4 (&(' $-+#6' ")$" *)&,&' $'?' +1!)' 'C1 ,?' @&8#,&' $'?' R1(.&'
#8' ++ L&' #,' +' 5, 1+6' #,' #,(+' #,' #,(' #8' R1+" ! $,?6' +)$--' @&')$('
#'" ")&' 22- !$" #'" #8' $'?' +1!)' &++&&' #,' &'$'" $" E --6' #,' #")&,'
5&,+#'")$4 '.' $'?' '8&, #,' '"&,&+" "' $'?' +1!)' $'(+6' &++1$.&+6'
&'&%&'"+6' &,&("$%&'"+6' #,' 5,&% +&+6' *)#' %$?')$4&' @&&'" (+N
+$" +8 &(' * ")' ")&' 5,#2#," #'" #8' #%2&'+$" #'" +&""-&(' @?' ")&' R1,?' "#'
@&' 2$ (' ' ,&+2&!" #8' +1!)' '"&,&+"6' "' +)$--' '#" @&-$*81-' 8#,' ")&' R1,?'
"' $'?' +1!)' $+&' "#' $-"&,' ")&' %#1'" #8' ")&' &'" ,&' #%2&'+$" #'"
$*$,(&(' @?' $'?' 8#,%&,' <&,(!" "#' @&' 2$ (' 8#,' +1!)' $'(+6' &++1$.&+6'
&'&%&'"+6' &,&("$%&'"+6' #,' 5,&% +&+66' @1" #'-?' ")&' 5,#2#," #'"
")&,&#8' "#' @&' 2$ (' "#' ")&' 5&,+#'" #,' 5&,+#'+')$4 '.' +&2$,$"&' '"&,&+"+'
")&,& "' $'(' "' +)$--' '#" @&' -$*81-' 8#,' $'?' R1,?6' #'" $'?' 'C1 ,?')$('
@&8#,&' $'?' R1(.&' #8' ++ L&' #,' +' 5, 1+6' #,' #,(+' #,' #,(' #8'
R1+" ! $,?6' $+' "#' $'?' #%2&'+$" #'" #'" ")&' 22- !$" #'" #8' ")&' +$ ('
#,(' .)' ,&$+1,&,' #,' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,?6'
"' $'?' $+&' "' *) !)' ")&' *)#-&' #%2&'+$" #'" $*$,(&(' @?' ")&' 8#,%&,'
R1,?' +' !#'8 ,%&(' @?' ")&' R1,?' #'" +1!)' 'C1 ,?6' "#' $-"&,' ")&' 5,#2#,N
" #'" ")$" +)$--')$4&' @&&'" +&""-&(' @?' $'?' +1!)' 8#,%&,' R1,?' $+' "#' $'?'
+&2$,$"&' '"&,&+"B' "' $'?' +1!)' $'(+6' &'&%&'"+6' &++1$.&+6' &,&N
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' 5,#4 (&(' $-+#6' $'(' @&' "' 81,")&,' &'$!"&(')$" "' +)$--' @&' DH I/ 36' 3 '
-$*81-' 8#,' ")&' #1," #,' R1(.&6' #,' #,(' ,(' '$,?6' %$: '.' $'?' +1!)'
1-&' #,' ,(&,6' "#' ,&C1 ,&' ")$" ")&' 5$,"?' #'" *)#+&' 22- !$" #'" ")&'
+$%&' +)$--' @&' %$(&' +)$--' . 4&' +1!)' &!1, "?' $+' +)$--' "#' +1!)' #1,"6'
R1(.&6' #,' #,(' ,(' '$,?' +&&%' 2,#2&,6' 8#,' 5$?%&'" #8' #+"+6' 1'(&,'
+1!)' ,!1%+"$'!&+' $+' +)$--' @&' +2&! 8 &(' "' $'?' 1-&' #,' ,(&,' %$(&'
8#,' ")$" 51,2#+&

' '(' @&' "' 81,")&,' &'$!"&(')$" "' $--' $+&+' *)&,&' $'?' C #' GD7 '
$'(+' +)$--' @&' "$:&'" 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !" 8#,' $'?' &,,$' FD/ #4' IC
#8' &$,+' #,' 8#,' +1!)' 5&, #(' #'-?' $+' ")&' 51@- !' &,4 !&' +)$--' ,&C1 ,&6' "' #*-8&7,$-,'
+)$--' @&' -$*81-' 8#,' ")&' #,(' .)' ,&$+1,&,' #,' #%% ++ #'&,+' #8' +' /DH3 #E' . /
$>&+"?;+

3"D' + I O7 H' D/F HD' 3 ' OD' /DO FDG!' % 2&'+$"8#' "#A 3"D' * '&,+6'

$>&+"?;+' ,&$+1,?6' #,' $'?' #")&,' 5&,+#'' #,' 5&,+#'+' +#' $1")#, L&(' $+' $8#,&+$ (6' $" $'?' %&' @&8#,&' ")&' 5#++&++ #'' #8' $'?' $'(+' *) !)' %4455' "$:&'' 8#,' ")&' 51,2#+&+' $8#,&+$ (' +)$--' @&' (&- 4&,&(8#' ")&' *'&,' #,' *'&,+' ")&,&#86' #,' #")&,' 5&,+7' #,' 5&,+#'+' $!" '.'#'') +6')&,6' #,' ")& ,' &)$-86' "#' "$:&' (#*'' $'(',&%#4&' $--' +1!)' 1 -('.+' #,' #")&,' ,&!" #'+' *) !)' +)$--' #,' %$?')$4&' @&&'' @1 -" #,' &,&!"&(' ")&,&#'' 8#,' ")&' 51@- !' &,4 !&6' $'(' "#' !$,,?' $*$?' ")&' $"&N , $-+' ")&,&#86' %$: '.'+1!)' #%2&'+$" #'' "#' ")&' *'&,' #,' *'&,+' #8' +1!)' $'(+6' #,' #")&,' 5&,+#'' #,' 5&,+#'+' $!" '.' #'') +6')&,6' #,' ")& ,' &)$-86' 8#,' ")&' 3$%$.&' #,' '>1,?' *) !)' %$?')$4&' @&&'' (#'&' ")&,&"#' #,' "#' ")&' #-' ")&,&#8' @?' ")&' ,&!" #'' #8' $'?' +1!)' 1 -('.+6' #,' ,&%#4 '.' $'(' !$,,? '.' $*$?' ")&' +$%&6' #,' #")&,* +&' '' !#'+&C1&'!&' #8' ")&' +$%&')$4 '.' @&&'' #!!12 &(' 8#,' ")&' 51@- !' &,4 !&6' $+' ")&' +$ (' #,(' .)' ,&$+1,&,6' #,' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$N +1,?6' #,' +1!)' #")&,' 5&,+#'' #,' 5&,+#'+' $1")#, L&(' $+' $8#,&+$ (6' +)$--' ") ':' ,&$+#'$@-&6' $'(' $+' +)$--' @&' $.,&&(' 12#'' '' ")$" &)$-8' $'(' 8' +1!)' *'&,' #,' *'&,+6' #,' #")&,' 5&,+#'' #,' 5&,+#'+' $!" '.' #'') +6')&,6' (,' ")& ,' &)$-86' +)$--' '#" @&' * -- '.' "#' $!!&2" ")&' #%2&'+$" #'' +#' #88&,&(6' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #,(' .)' ,&$+1,&,6' (,' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,?6' #,' #")&,' 5&,+#)' #,' 5&,+#'+' +#' $1")#, L&(' $+' $8#,&+$ (6' "#' $22-?' "#' $'(',&C1 ,&' *#' R1+" !&+' #8' ")&' 5&$!&' #8' ")&' #1'"?6' ('.6' "&*$,",?6' "?6' #,' 5-$'&' "#' +&""-&' $'(' $+!&,"$ '' ")&' #%2&'+$" #'' *) !)' #1.)' "#' @&' %$(&' 8#,' +1!)' 3$%$.&' #,' '>1,?' $+' $8#,&+$ (' ' $'(' +1!)' R1+" !&' +)$--' +&""-&' $'(' $+!&,"$ '' ")&' +$%&' $!!#,('.-?6' $'(' +)$--' .,$'' $' &," 8 $"&' ")&,&#8' $'(' ")&' %#1'' #8' +1!)' #%2&'+$" #'6' +#' +&""-&(' $'(' $+!&,"$ '&(' $'(' !&,N " 8 &(6' +)$--' 8#,") * ")' @&' 2$ ('@?' E$,,$'' #8' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,?6' #,' $'?'),&&' #,' %#,&' #8' ")&%6' "#' ")&' 5&,+#'' #,' 5&,+#'+' &'"-&(' ")&,&"#] 5,#4 (&(' $-*$?+6' ")$" '#") '.' '' ") +' !" +)$--' &9"&'(' #,' @&' !#'+",1&(' "#' &9"&'(' "#' $-"&,6' 2,&>1(!&6' #,' $88&!" $'?' .,&&%&'' *) !)')$")' @&&'' #,' +)$--' #,' %$?' @&' &'"&,&(' '"#' @?' $'?' +1!)' 5&,+#'' #,' 5&,+#'+' $1")#, L&(' $+' $8#,&+$ (' * ")' $'?' *'&,' #,' *'&,+' #8' $'?' +1!)' $'(+6' #,' #")&,' 5&,+#'' #,' 5&,+#'+' $!" '.' #'') +6')&,6' #,' ")& ,' &)$-86' '' ,&-$" #'' "#' $'?' +1!)' 1 -('.+' #,' ,&!N " #'+6' @1" &4&,?' +1!)' .,&&%&'' +)$--' ,&%$ '' 4$- (' $'(' &88&!"1$-' '' - :&' $''&,' $+' 8") +' !")$(' '#" 2$++&(

+ I /H"2ED' B #D6' OD^ 7 #4 #4' 3 ' '#H2C2H 323DG' +D/E #E!' 3 ' OD' C2 G' 3 ' 3"D' C CD/' '..HD/' .' 3"D' &H"D\ I D/' . /' 3"D /' ED

' (' @&' " 81,")&,' &'$!"&(6')$" '' $--' $+&+' *)&,&' $'?' #'&?' +)$--')$4&' @&&'' #,' +)$--' @&' $.,&&(6' #,' +)$--')$4&' @&&'' #,' +)$--' @&' 8#1'(' @?' ")&' <&,(!" #8' $'?' R1,?6' "#' @&' 2$ (' #,' . 4&'' 8#,' ")&' V+&' #,' 5#++&++ #'' #8' $'?' $'(+6' &++1$.&+6' &'&%&'"+6' &,&("$%&'"+6' #,' 5,&% +&+' "$:&'' @?' < ,"1&' #8' ") +' !"6' @&-#'.' '.' "#' $'?' 5&,+#'' #,' 5&,+#'+' 1'(&,' $'?' 3 +$@ -"?' #,' '!2! "?6' #,' '#")$4 '.' ")&' $@+#-1"&' '"&,&+" ")&,&' '6' ")&' +$%&' +)$--' @&' 2$ (' @?' E$,,$'' #8' ")&' #%% +N + #'&,+' #8' +' $>&+"?;+' ,&$+1,?6' #,' $'?'),&&' #8' ")&%6' '"#' ")&' $'(+' #8' ")&' 2,#2&,' 88 !&,' #8' +' $>&+"?;+' #1," #8' 9!)&C1&,' $" / * '. " '#,' ' " ',&+2&!" 4&-?' 8#,' ")&' %&' @& '.' 8#,' ,&!& 4 '.' ")&' #' &+' @&-#'.' '.' "#' ")&' 1 "#,+' #8' ")&' +$ (' #1," ,&+2&!" 4&-?6' 8#,' ")&' V+&' $'(' &'&8 " #8' +1!)' 5&,+#'' #,' 5&,+#'+' ' $'(' +1!)' 88 !&,' +')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' "#' ,&!& 4&' #,' $!!&2" $'(' "#' . 4&' $' 3 +!)$,.&' 8#,' +1!)' #'&?6' $'(' 12#'' ")&' !!&2"$" #' #,' &!& 2" ")&,&#8' "#' + .'' $' &," 8 !$"&' "#' ")&' $,#'+' #,' R1(.&+' #8' ")&' +$ (' #1,"+' #8' 9!)&C1&,' ,&+2&!" 4&-?6' 1'(&,') +' $'(6' 21,2#,"B

' . $ ' (+ . ' 8? ' . ") $" +1!) #'&? #, #")&, #'+ (&,$" #' *$+ ,&N
!& 4&(#, $!!&2"&(@? $'(2$ ("#) % ' 21,+1$'!& #8") + !"6 8#,
")& V+& $'(7 &'&8" #8 +1!) 5&,+#' #, 5&,+#'+ *)# +)$-- @& '$%&(
$'((&+!, @&(' +1!) &," 8 !$"& $'(")&+$ (&," 8 !$"& +)$--@& 8 -&(
#, (&2#+ "&(7 ")6& +$ (#1," #8 9!)&C1&, $" / * . =
" #, ' " ,&+2&!" 4&-?6 $'($'",1& #2? ")&,&#86 + . '&(@?
+1!) 88 !&, #8 +1!) #1,"6 +)$-- $'(%$? @& ,&$($'($--#*&($+
4 (&'!& 8#, ")& 51,2#+&+)&,& 'B$8"&, %&'"#'&($'(+1!) 88 !&, B #D6 3 ' OD
#8 +1!) #1," +)&,& I ,&C1 ,&(6 12#' &!& 2" #8 $'? +1!) 1% #, 2$ (#3 ' 3"D
1%+ #8 #'&? $+ $8#,&+$ (6 "# 2$? ")& +$%& '"# ")& $' : #8 . 2
#, $' : #8 #, #?$- $' : #8 #, $' : #8
$+ ")& $+& %$? ,&C1 ,& $'(%%&($"&-? 12#' ")& 8 - ' .
#, (&2#+ " ' . #8 +1!) &," 8 !$"& ")& +$ ($'(+6 &++1$.&+6 &'&N
%&'"+6 &,&("$%&'"+6 #, 5,&% +&+ +)$-- @& 4&+"&(' #, "# ")& V+& #8
+ $>&+"?6 + & ,+ $'(1!!&++#,+

< ' (@& " 81,")&, &'$!"&( )$" ")& $,#'+ #, R1(.&+ #8 2/ #E .'3"D
+ $>&+"?;+ #1," #8 9!)&C1&, $" / * $'(")& $,#'+ #,
R1(.&+ #8 + $>&+"?;+ #1," #8 9!)&C1&, $" . " ' " 3! # .'+2/ '
8#, ")& %& @& ' . ,&+2&!" 4&-?6 #, $'? *# #, %#,& #8 ")&%6 +)$-- 3 DE I3D/DE3 '
@& $'(")&? $,&)&,&@? $1")#, L&($'(&%2#*&,&(' $ +1%%$,? &(6 3 ' /GD/
E$?6 12#' #" #' #, @? 5&" "#' 8#, $'(#' @&)$-8 #8 $'? 5&,+#' R8#' #5
#, 5&,+#'+ '"&,&+"&(' #, &'" "-&("# ")& &'&8 #8 ")& #'&? +# B #D6!
2$ ("# $'(,&!& 4&(@? ")& 2,#2&, 88 !&, #8 ")& +$ (#1,"+ ,&+2&!N
" 4&-?6 #, ")& '"&,&+" #, 5,#(1!& ")&,&#86 $'(12#' ,&$(' . ")&
&," 8 !$"& (,&!"&("# @& + . '&(@? ")& +$ (88 !&, !#'!&, ' . ")&
+$%& $+ $8#,&+$ (6 $'(,&!& 4 ' . +1!) 81,")&, $" +8$!" #' $+ ")&? +)$--
") ' : '&!&++$,?6 "# %$:& $'(2,#'#1'!& +1!) ,(&,+ $'(3 ,&!" #'+
8#, 2$? ' . ")& +$ (#'&?6 #, $'? 5$," #8 ")& +$%&6 #, 8#, 2-$! ' .
#1" +1!) 5$," ")&,&#8 $+ +)$-- @& 5, '! 2$- ' ")& 51@- ! 1'(+ #,
12#' H#4&,'%&'" #, &$- &!1, "&+6 $'(8#, 5$?%&'" #8 ")& 3 4 N
(&'(+ #, '"&,&+" ")&,&#86 #, $'? 5$, ")&,&#86 "# ")& ,&+2&!" 4&
5&,+#'+ &'" "-&("# ,&!& 4& ")& +$%&6 #, 8#, -$? ' . #1" ")& 5, '! 2$-6
#, $'? 5$," ")&,&#86 ' ")& 51,!)$+& #8 #")&, $'(+ "# @& !#'4&?&(
$'(+&""-&("#6 8#,6 $'(12#' ")& +$%& V+&+6 ,1+"+6 '"&'"+6 $'(
51,2#+&+ $+ ")& +$ ($'(+ +# "$:&' +"##(+&""-&($" ")& %& #8
")& 5$?%&' #8 +1!) #'&? $+ $8#,&+$ (6 $+ '&$,$+ $+ ")& +$%& !$' @&
(#'&6 #, #")&, * +& !#'!&, ' . ")& (+2#+ ' . #8 ")& +$ (#'&?6
#, $'? 5$," ")&,&#86 $'(")& '"&,&+" #8 ")& +$%&6 #, $'? 5$,
")&,&#86 8#, ")& &'&8 #8 ")& 5&,+#' #, 5&,+#'+ ,&+2&!" 4&-?6 #, 8#,
$22# ' . $'? 5&,+#' #, 5&,+#'+ "# @& ,1+"&& #, ,1+"&&+ 8#, $-- #,
$'? #8 +1!) 51,2#+&+6 $+ ")& +$ (#1,"+ ,&+2&!" 4&-? +)$-- ") ' :>1+"
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< ' (@& " 81,")&, &'$!"&( )$" 12#' ")& 3&$")6 &%#4$-6 ' #3"D * D23"!
#, &+ . '$" #' #8 $'? +1!) 88 !&, #8 ")& +$ (#1,"+ #8 9!)&C1&, =D O F27! /
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")& +1!!&&(' . 88 !&, #8 ")& 9!)&C1&,6 8#, ")& 51,2#+&+)&,& 'N . ' .. HD/ .
@&8#,& %&'" #'&(6 * ")#1" $'? ++ . '%&' #, ,$'+8&, > $'($-- &H"D\ ID/!
#' &+ 2$ (' ")& +$ ($' : + ,&+2&!" 4&-? ' 21,+1$'!& #8 ") + !"6 3 H]E 2#G
#, ,&%$ ' ' . ")& $'(+ #8 $'? +1!) 88 !&, $") + 3&$")6 &+ .N DH I / 3 DE
'$" #'6 #, &%#4$-6 $'('#" 4&+"&(' ")& 1'(+ #, 2-$!&(#1" #' E"277 FDE3 #
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VVQ ; K B (2C V

&!1, " &+ $+ $8#,&+$ (6 +)$-- @& 2$ (#4&, "# ")& +1!!&&('. 88 !&, 8#, ")& - :& 51,2#+& 8#, ")& %& @& '.

2/GD#E # 3 3 OD 2..DH3DG!

< 5,#4 (&($-*$?+6 $'(@& " 81,")&, &'$!"&( )$" '#") '. '") +; &" !#'"$ '&(+)$-- @& !#'+",1&("# &9"&'("# I '? H$,(&' #, 5-&$+1,& H,#1'(6 #, "# $'? $'(%%&($"&-? !#'" .1#1+ "# $'(1+&($+ ")& 1," -$.& #, #%&+"&$(#8 $'? 3*&-- '. #1+&

* HI# DI E E 4#DG O6 "/DD (O^ O EE #D/E . 3"D /D2EI/6 3 OD GDD O DG 3"D H3 .3"D Z" 7D (O^ O EE #D/E

< '(@& " 81,")&, &'$!"&(6)$" &4&,? ,(&,6 3#!1%&'"6 '+",1%&'"6 #, E, "'. ,&-$" '. "# ")& 1+"#%+ #, "# ")& $* #8 $4 .$" #'6 ,&C1 ,&(@? $'? $* $" $ * %& ' 8#,!& "# @& 1'(&, ")& $'(+ #8 ")& #),$ ++ #'&,+ #8 + $>&+"?;+ ,&$+1,?6 @& '. + .'&(@?),&& #, %#,& #8 +1!) #%% ++ #'&,+6 7+)$V @& (&&%&("#)& $' ,(&,6 3#!1%&'"6 '+",1%&'"6 #, E, "'. 1'(&, ")& $'(+ #8 ")& #%% ++ #'&,+ #8 + $>&+"?;+ ,&$+1,? $!!#,('.-?

H3 O26 OD 273D/DG 3" E DEE #

< '(@& " 81,")&, &'$!"&(6)$" ") + !") $? @& $-"&,&(6 4$, &(6 #, ,&2&$-&(@? $'? !" "# @& 2$++&(' ")& 2,&+&'" &++ #' #8 5$,- $%&'"

3] 5, '"&(@? $'(#

2, '"&,+ "# ")& D '.;+ %#+" 9!&--&'" $>&+"?

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H3 . / 3"D 4D#D/27 = D4 I 723 # . 3"D (I E3 O E
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$' !" *$+ 2$++&(' ")& 9") &$, #8 ")&
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"1-&(* H !
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+ '!& ")& 2$++ '. #8 ")& +$ (!" (4&,+ !"+ 8#, ")& 81,")&, %&'(N
%&'" #8 ")& $*)$4& @&&' 8#1'('&!&++$,?6 $'(" * -- @& #8
$(4$'"$.& "# ")& ,$(& $'(#%%&,!& #8 ")& #1'",? ")$" ")& +$ (
!"+ +)#1-(@& !#'+#- ($"&('"# '& !"] & " ")&,&8#,& &'$!"&(
@? ")& D '. ;+ %#+" 9!&--&'" $>&+"?6 @? $'(* ") ")& (4 !& $'(
#'+&'" #8 ")& #, (+ 2 , "1$- $'(&%2#,$-6 $'(#%%#'+6 ' ") +
2,&+&'" 5$,- $%&'" $++&%@-&(6 $'(@? ")& 1")#, "? #8 ")& +$%&
)$" ") + !" +)$-- !#%%&'!& 12#' ")& ,+" 3$? #8 *" '& (O OD#HD
")#1+$'(& .)")1'(,&($'(") ,"?B"),&&6 &9!&2" *)&,& $'? #")&, OD#3 . H3
#%%&'!&%&'" +)&,& ' 2$," !1-$,-? (,&!"&(

'(*)&,&$+ " + &92&(&'" ")$" ")& ! J 1+"#%+)@ =*
+)#1-( )$4& 81-- #. ' L$'!& #8 $--) 2+ !#% '. '"# $'? 5#," ' ")&
V' "&(D '.(#% #, ' ")& #
")&,&#86 $'(#8 $-- H##(+ #' @#$,(6 #, *) !) %$?)$4& @&&' #"
A @#$,(

) @ = *
(
) ' GE 3 '
OD'72#GDG # /'
I7]' O/]D#
OD. /D' =D^
C /3' 2#G'
#3/6
0 DE' 2#G'
+72HDE' .'
72#G #4N' 2#G'
(2/D' .'
' .. HD/E'
GE # 3'
/DC /3DG' /'
D#3D/DG!'
. /.D 3DG
.' I7]' 77D^
42776'O/]D#'
B 2E3D/' 3 '
. /.D 3' 7' ' i
(D/32 #
/3 H7DE' 0 26'
OD' 72#GDG'
Z 3" I3'
#3/6

@#$,(' +1!)') 2+6' $'(' $-+#' #8' $--' H##(+' 1'-$(&'' 8,#%' $'?') 2' %'
$'?' 5#,"' #,' 5-$!&' '' ")&' V' "&(' D '.(#%' #,' '' ")&' ' ' '-' @&'
'' ")&,&8#,&' &'$!"&(6')$"' '#' H##(+' +)$--' @&' 1'-$(&'' 8,#%' $'?') 2'
$,, 4 '.>' 8,2%' 5$,"+' @&?#'(' ")&' &$+' $"' $2?' 5#,"' #,' 5-$!&' '' ")&'
V' "&(' D '.(#%' #,' '' ")&' ' ' ' '#,' +)$--' 1-:' @&' @,#:&''
$8"&,' ")&' ,, 4$-' #8' +1!)' ;) 2' * ") '' #1,' &$.1&+' #8' ")&' #$+"+'
")&,&#8' ,&+2&!" 4&-?6' @&8#,&' (1&' &2#,"' #8' +1!)') 2' $'(' (1&' '",?'
#8' +1!)' H##(+' +)$--')$4&' @&&'' %$(&6' $'(' E $,,$''' .,$''&(6' '' %$'N
'&,')&,& 'B$8"&,' (,&!"&(' $'(' ")$"' '#' H##(+' +)$--' @&' +#' 1'-$(` '
&9!&2"' $"' +1!)' %&+' $'(' 5-$!&+6' $'(' '' +1!)' $''&,6' $'(' @?' +1!)'
5&,+#'+6' $'(' 1'(&,' ")&' $,&' #8' +1!)' 88 !&,+6' $+' +' $'(' $,&')&,& 'N
$8"&,' (,&!"&(' $'(' ")$"' $--' H##(+' '#"' (1-?' ,&2#,"&(6' #,' *) !)' +)$--'
@&' 1'-$(&'' !#'",$,?')&,&"#6' +)$--' @&' 8#,8& "&(' ' $'(' 8' 1-:' @&' @,#:&''
!#'",$,?')&,&"#6' ")&' $+"&,' #8' +1!)') 2' +)$--' 8#,8&' ")&' 1%' #8'
'&')1'(,&(' 5#1'(+' ' $'(' 86' $8"&,' ")&' ,, 4$-' 28' $'?') 2' * ") ''
#1,' &$.1&+' #8' ")&' #$+"' #8' ")&' V' "&(' D '.(#%' #,' #8' ")&' '
' '$'?' -"&,$"' #'' @&' %$(&' '' ")&' "#*$.&' #8' ")&' $,.#' #8' +1!)'
) 26' +#' $+' "#' 8$! - "$"&' ")&' 1'-$(' '.' #8' $'?' 5$,"' #8' +1!)' $,.#6' #,'
8' $'?' 5$,"' @2' +"$4&(6' (&+",#?&(6' #,' ") ,#* '' #4&,@#$,(6' #,' $'?' 5$!:$.&'
@&' #2&'&(6' +1!)') 2' +)$--' @&' (&&%&(' "#')$4&' @,#:&'' 1-:] 58#B'
4 (&(' $-*$?+6' ")$"' ")&' +&4&,$-' ," !-&+')&,& 'B$8"&,' &'1%&,$"&(' %$?'
@&' -$'(&(' '' ")&' V' "&(' D '.(#%' * ")#1"' &2#,"6' '",?6' #,' E $,N
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-
77' @E"'
" CE!' 2#G' 277'
" CE' Z 3"'
O2HH !' 3 '
.DE3E' 77AA+A'
+2/3 H I72/E' .'
B 2# .DE3

' '(' @&' '' 81,")&,' &'$!"&(')$"' '#' H##(+' +)$--' @&' %2#,"&('
V' "&(' D '.(#%' #,' '"#' ")&' ' ' ' 8,#%' 5$,"+' @&?#'(
")&' &$+' '' 0 ' (') 26' '#,' $'?' #@$!!#' '' $'?') 26' 1'-&++'
")&' $+"&,' +)$--')$4&' #'' @#$,(' $' $' 8&+'' #8' +1!)' H##(+' #,' #8' +1!)'
#@$!!#6' %$(&' #1' $'(' ($"&(' $'(' + .'&(' @?') %' Y6' ")&' 5-$!&' #,'
,&+2&!" 4&' 5-$!&+' *)&,&' ")&' +$%&' #,' ")&' (88&,&'' 5$,"+' #8' ")&' +$%&'
*$+' #,' *&,&' "$:&'' #'' @#$,(6' $'(' $1")&'' !$"&(' '' ")&' $''&,')&,& 'B'
$8"&,' 2,#4 (&(' $'(' &4&,?' +1!)' $' 8&+'' +)$--' +&' 8#,")' ")&' $%&'
$'(' ")&' #''$.&' #8' ")&') 26' ")&' $%&' #8' ")&' $+"&,' $'(' #8' ")&'
5-$!&' "#' *) !)' ")&') 2' @&-#'.+6' $'(' #8' ")&' 5-$!&' #,' 5-$!&+' *)&,&'
")&' H##(+' *&,&' "$:&'' #'' @#$,(' ,&+2&!" 4&-?6' $'(' #8' ")&' 5-$!&' #,'
5-$!&+' 8#,' *) !)' ")&?' $,&' (&+"' '&(' ,&+2&!" 4&-?6' $'(' +)$--' !#'"$ '' $'
2$," !1-$,' !!#1'"' $'(' 3&+!, 2" #'' #8' $--' ")&' 5$!:$.&+' #'' @#$,(6'
* ")' ")&' $,:+' $'(' 1%@&,+' ")&,&#'6' $'(' ")&' #,"+' #8' H##(+' $'('
(88&,&'' D '(+' #8' &$!)' #," !#"$ '&(' ")&,&'6' "#' ")&' @&+"' #8' ")&'
$+"&,,;+' D'#*-&(.&6' $'(' #8' ")&' 5$," !1-$,+' #8' +1!)' H##(+' $+' $,&'
+"#*&(' -##+&6' $'(' ")&' $%&+' #8' ")&' ,&+2&!" 4&') 22&,+' $'(' #'N
+ .'&&+6' $+' 8$,' $+' ")&' +$%&' !$'' @&' :'#*'' "#' ")&' $+"&,' $'(' "#' +1!)'
2$," !1-$,' !!#1'"' +)$--' @&' +1@>#'&(' $' .'&,$-' !!#1'"' #,' &!$N
2 "1-$" #'' #8' ")&' "#"$-' 1%@&,' #8' ")&' 5$!:$.&+' #8' &$!)' #,"6' (&N
+!, @ '.' ")&' +$%&' @?' ")&' ,' 1+1$-' $%&+6' #,' @?' +1!)' 3&+!, 2" #'' $+'
")&' +$%&' !$'' @&+'' @&' :'#*'' @?6' $'(' ")&' (88&,&'' H##(+' ")&,&' '6'
$'(' $-+#' ")&' "#"$-' T1$''' &+' #8' ")&' (88&,&'' H##(+' +"#*&(' -##+&]
5,#4 (&(' $-*$?+6' ")$"' &4&,?' $' 8&+'' 8#,' #@$!!#' +)$--' @&' $' +&2$,$"&'
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* ")#1' 8$-6' !#'"$ '' ")&' %," !1-$,' E & .)' #8' #@$!!#' '' &$!)'
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L B ' ' (2CV T

1!)' #@$!!#' @&' ")&' 5,#(1!&' #8' ")&' 3#% ' #'+' #8' ")&' H,$'(' 6 '
& .'#,6' ")&'' ")&' 1%@&,' #8' ")&' 5$,!&-+' #,' 1'(-&+' * ") '' $'?' +1!)' -
#.+)&$(6' $+:6')&+"6' #,' $+&' +)$--' @&' +"$"&(' '' +1!)' $' 8&+"

<' '(' @&' '' 81,")&,' &'$!"&(')$"' @&8#,&' $'?') 2' +)$--' @&' ' OD' C/ '
!-&$,&(' #1" #,' (&2$,"' 8,#%' $'?' 5-$!&' '' $'?' #8' ")&' (' 5#++&+B
+#'+' @,#$(6' #,' 8,#%' $'?' 5-$!&' '' ' * ")' $'?' H##(+' 8#,' ")&'
V' "&(' D '.(#%' #,' 8#,' ")&' ' ' ' ")&' $+"&,' #8' +1!)') 2'
+)$--' 2,#(1!&' ")&' $' 8&+" "#' ")&' #--&!"#,' #,' #'",#--&,' #8' ")&'
1+"#%+6' #,' #")&,' 2,#2&,' 88 !&,6' *)#' +)$--' !&,"8?' 12#'' ")&' +$%&'
")&' 3$"&' #8' ")&' 5,#(1!" #'' ")&,&#8' "#') %] 5,#4 (&(' $-*$?+6' ")$"
'' $--' 5-$!&+' * ") '' ")&' &,, "#, $-' 5#++&++ #'+' #8' ")&' . ' '
#%2$'?' ")&' &,4$'" #8' ")&' +$ (' #%2$'?' @?' *)#%' ")&' -$+" 3 +N
2$"!)&+' #8' +1!)') 2' +)$--' @&' (&-4&,(' +)$--' @&' ")&' 2,#2&,' 88 !&,'
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")&') &8' 12&,!$,.#' #8' ")&' +$ (' #%2$'?' +)$--' @&' ")&' 2,#2&,' 88 !&,'
8#,' +1!)' 51,2#+&

<' '(' @&' '' 81,")&,' &'$!"&(')$"' @&8#,&' ")&' 3&2$,"1,&' #8' $'?' ' @& C/ '
) 2' 8,#%' $'?' 5-$!&' @&?#'(' ")&' &$+' '#" 1'(&,' ")&' (' 3#% B 8-1!&(' "#
'#'+6' *)&,&' $'?' #@$!!#')$+' @&&'' "$:&'' #" @#$,(' +1!)') 2' 8#,
")&' V' "&(' D '.(#%' #,' 8#,' ")&' ' ' ' ")&' $+"&,' #8' +1!)'
) 2' +)$--' 2,#(1!&' ")&' $' 8&+" #8' +1!)' #@$!!#' "#' ")&' ('
#'+1-' #,' #")&,') &8' (' 88 !&,6' 8' ")&,&' @&' $'?' +1!)' ,&+ (&'"
$" #,' '&$,' +1!)' 5-$!&' ' $'(' +1!)' #'+1-' #,' #")&,' 88 !&,' +)$--' !&," 8?'
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<' '(' @&' '' 81,")&,' &'$!"&(')$"' 8' $'?' H##(+' +)$--' @&' .' Z2#3 #4!'
%2#,"&(' '"#' ")&' V' "&(' D '.(#%' #,' '"#' ")&' ' ' ' '' $'?' B 2E3D/' 3 '
(') 26' #,' $'?' #@$!!#' '' $'?') 76' * ")#1" +1!)' $' 8&+"6
#,' 8' $'?' H##(+' !#'"$ '&(' '' +1!)' $' 8&+" @&' '#" #'' @#$,(6' ")&'
$+"&,' #8' +1!)') 2' +)$--' 8#,8&' " ")&' 1%' #8' '&')1'(,&(' 5#1'(+

<' ' '(' @&' '' 81,")&,' &'$!"&(')$"' ")&' $+"&,' #8' &4&,?') 2' B 2# .DE3' 3 '
,&C1 ,&(' "#')$4&' $' $' 8&+" #'' @#$,(' +)$--' 2,#(1!&' +1!)' $' 8&+" OD' C/ G I HDG'
"#' $'?' 88 !&,' #8' ")&' 1+"#%+' *)#' +)$--' !#%&' #'' @#$,(') +') 2' Z 3" #' A I/'
$8"&,')&,' ,, 4$-' * ") '' #1,' &$.1&+' #8' ")&' #$+" #8' ")&' V' "&(' D24 I DEN
D '.(#%' #,' #8' ")&' #$+" #8' ")&' ' ' ' $'(' *)#' +)$--' (&%$'('
")&' +$%&6' 8#,') +' '+2&!" #'' ' $'(' +1!)' $+"&,' +)$--' $-+#' (&-4&,' "#' 2#G' (C DE'
$'?' +1!)' 88 !&,' *)#' +)$--' @&' ")&' 8 ,+" "#' (&%$'(' "6' $' ",1&' #2?' #8' GD7 FD/DG' 3 '
+1!)' $' 8&+" + .'&(' @?' ")&' $+"&,' ' $'(' +)$--' $-+#' (&-4&,' $'#")&,' ' .. HD/E
#2?' "#' $'?' #")&,' 88 !&,' #8' ")&' 1+"#%+' *)#' +)$--' @&' ")&' 8 ,+" "#'
(&%$'(' ")&' +$%&' * ") '' ")&' %"+' #8' ")&' 5#," "#' *) !)' +1!)'
) 2' +' @#1'(' ' $'(' ")&,&12#'' +1!)' 88 !&,+' ,&+2&!" 4&-?' +)$--' '#" 8?'
#'' +1!)' $' 8&+" $'(' #'' +1!)' #2 &+' ")&' 3$"&' #8' ")&' 5,#(1!" #'' #8'
+1!)' $' 8&+" $'(' #8' ")&' &!& 2" #8' +1!)' #2 &+6' $'(' +)$--' ",$'+% " (C DE' 3 ' OD'
+1!)' #2 &+' "#' ")&' #--&!"#,' $'(' #'",#--&,' #8' ")&' 5#," "#' *) !)' 3/2#E O 33DG'
+1!)' <&++&-' +' 8 ,+" @#1'(6' $'(' +)$--' ,&"1,'' +1!)' $' 8&+" "#' ")&' 3 ' + /3' .'
$+"&,' $'(' 8' +1!)' $+"&,' +)$--' '#" '' $'?' $+&' 2,#(1!&' +1!)' * DE3 #23 #'
$' 8&+"6' #,' (&-4&,' +1!)' #2?6')&' +)$--' 8#,8&' " ")&' 1%' #8' '&' B 2E3D/' # 3'
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<' ' '(

, , @ * < ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(6ʿ)$"ʿ ")&ʿ $+"&,ʿ #8ʿ &4&,?ʿ) 2

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D '.(#%ʿ #,ʿ 'ʿ ")&ʿ ʿ7 ʿ *)&")&,ʿ -$(&'ʿ #,ʿ 'ʿ @$--$+"6ʿ +)$--6ʿ

B 2E3D/!ʿ Z 3"^ * ") 'ʿ K *&'"?B8#1,ʿ #1,+ʿ $8"&,ʿ +1!)ʿ ' 4$-6ʿ $'(ʿ @&8#,&ʿ 1-:ʿ @&ʿ
#ʿ ʿ > I/E!ʿ @,#:&'6ʿ %$:&ʿ (1&ʿ &2#,"ʿ #8ʿ +1!)ʿ) 26ʿ $'(ʿ +)$--ʿ %$:&ʿ $'(ʿ +1@+!, @&ʿ
2#Gʿ OD. /Dʿ $ʿ 3&!-$,$" #'ʿ "#ʿ ")&ʿ ,1")ʿ #8ʿ ")&ʿ +$%&6ʿ @&8#,&ʿ ")&ʿ #--&!"#,ʿ #,ʿ #'Bʿ
O/D2] #4ʿ ",#--&,ʿ #8ʿ +1!)ʿ 5#,"ʿ ʿ $'(ʿ +1!)ʿ &2#,"ʿ +)$--ʿ !#'"$ 'ʿ $'ʿ !!#1'"ʿ #8ʿ
I7]!ʿ E"27ʿ ")&ʿ 2$," !1-$,ʿ $,:+6ʿ 1%@&,+6ʿ $'(ʿ #'"&'"+ʿ #8ʿ $--ʿ ")&ʿ (88&,&'"ʿ
/DC /3 5$!:$.&+ʿ #,ʿ 5$,!&-+ʿ #8ʿ ")&ʿ H##(+ʿ #'ʿ @#$,(ʿ +1!)ʿ) 26ʿ $'(ʿ ")&ʿ 5$,N
+2/3 HI72/Eʿ " !1-$,+ʿ #8ʿ +1!)ʿ H##(+ʿ $+ʿ $,&ʿ +"#*&(ʿ -##+&6ʿ "#ʿ ")&ʿ @&+"ʿ #8ʿ) +ʿ
.ʿ =DC /3 D'#*-&(.&6ʿ $'(ʿ #8ʿ ")&ʿ 5-$!&ʿ #,ʿ 5-$!&+ʿ *)&,&ʿ +1!)ʿ H##(+ʿ *&,&ʿ
,&+2&!" 4&-?ʿ "$:&'ʿ #'ʿ @#$,(6ʿ $'(ʿ #8ʿ ")&ʿ 1,")&'ʿ #8ʿ +1!)ʿ) 26ʿ $'(ʿ
#8ʿ ")&ʿ #1'",?ʿ *)&,&ʿ +1!)ʿ) 2ʿ *$+ʿ @1 -"6ʿ #,6ʿ 8ʿ (ʿ #8ʿ ")&ʿ
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$+"&,ʿ (1, '.ʿ ")&ʿ <#?$.&6ʿ $'(ʿ #8ʿ ")&ʿ 1%@&,ʿ #8ʿ ")&ʿ 5&#2-&ʿ @?ʿ
*)#%ʿ +1!)ʿ) 2ʿ *$+ʿ '$4 .$"&(6ʿ +"$" '.ʿ)#*ʿ %$'?ʿ $,&ʿ 1@>&!"+ʿ #8ʿ
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*)&")&,ʿ $'(ʿ 'ʿ *)$"ʿ $+&+ʿ +1!)ʿ) 2ʿ)$+ʿ @,#:&'ʿ 1-:ʿ 'ʿ ")&ʿ !#1,+&ʿ
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%2#,"$" #'ʿ $"ʿ +1!)ʿ 5#,"6ʿ $'(ʿ *)7"ʿ 5$,"6ʿ 8ʿ $'?6ʿ +ʿ '"&'(&(ʿ 8#,ʿ
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"#ʿ 5$,"+ʿ @&?#'(ʿ ")&ʿ &$+6ʿ $'(ʿ *)$"ʿ +1,2-1+ʿ "#,&+ʿ #,ʿ "#!:ʿ ,&%$ 'ʿ
#'ʿ @#$,(ʿ +1!)ʿ) 26ʿ $'(6ʿ 8ʿ $ (ʿ) 26ʿ *)$"ʿ 8#,& . 'B%$(&ʿ $ -+ʿ
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DEED7Eʿ H O^ $+"&,ʿ #8ʿ &4&,?ʿ <&++&-ʿ !#% '.ʿ 8,#%ʿ ")&ʿ #$+"ʿ #8ʿ ʿ $'()$4 '.ʿ
#4ʿ ./ Oʿ "$:&'ʿ #'ʿ @#$,(ʿ $"ʿ $'?ʿ 5-$!&ʿ 'ʿ ʿ $'?ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ @& '.ʿ
./ H2ʿ 3 ʿ #,ʿ $22&$, '.ʿ "#ʿ @&ʿ $" 4&+ʿ #8ʿ ʿ +)$--6ʿ 'ʿ $(("#'ʿ "#ʿ $--ʿ #")&,ʿ
/DC /3ʿ " Zʿ $""&,+6ʿ +"$"&6ʿ 'ʿ ")&ʿ &2#,"ʿ #8ʿ) +ʿ <&++&-6ʿ)#*ʿ %$'?ʿ +1!)ʿ 5&,+#'+ʿ
O2#6ʿ) 23 FDEʿ)$4&ʿ @&&'ʿ "$:&'ʿ #'ʿ @#$,(ʿ @?ʿ) %ʿ 'ʿ -ʿ $'(ʿ $'?ʿ +1!)ʿ $+"&,ʿ
3"D6ʿ "2FDʿ 8$ - '.ʿ)&,&ʿ 'ʿ +)$--ʿ 8#,8&ʿ "ʿ ")&ʿ 1%ʿ #8ʿ '&ʿ)1'(,&(ʿ 5#1'(+ʿ] 5,#4 (&(ʿ
32]D#ʿ #ʿ $-+#6ʿ ")$"ʿ ")&ʿ $+"&,ʿ #,ʿ *'&,ʿ #,ʿ *'&,+ʿ #8ʿ +1!)ʿ <&++&-6ʿ #,ʿ +#%&ʿ
O 2/Gʿ # #,ʿ #'&ʿ #8ʿ ")&%6ʿ $"ʿ ")&ʿ %&ʿ #8ʿ %$: '.ʿ +1!)ʿ &2#,"6ʿ @&ʿ ,&C1 ,&(ʿ "#ʿ
./ H2!ʿ 2#Gʿ &'"&,ʿ '"#ʿ #'(ʿ "#ʿ +ʿ $>&+"?ʿ 'ʿ ")&ʿ 1%ʿ #8ʿ '&ʿ)1'(,&(ʿ 5#1'(+6ʿ
3 ʿ 4 FDʿ #Gʿ !#'(" #'&(ʿ "#ʿ :&&2ʿ)$,%-&++ʿ $'?ʿ 5$, +)6ʿ #,ʿ $'?ʿ 9",$B2$,#!) $-ʿ #,ʿ
3 ʿ O2 #32 #ʿ #")&,ʿ 5-$!&ʿ %$ '"$ 1 '.ʿ "+ʿ #*'ʿ 5##,6ʿ $.$ '+"ʿ $'?ʿ 92&'!&ʿ *) !)ʿ
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'",? @? --' #8 .)"6 ' %$"'&,')&,& 'B$8"&,' 2,#4 (&(6 $'('+)$--' ' .. HD/' O26
* ") ' +1!)' %& -$'(' ")& +$%&' ' $'(' ' (&8$1-" #8 +1!)' '",? $'(' 72#G GE
$'('.' " +)$--' @& -$*81-' 8#,'")& 88 !&,+ #8")& 1+"#%+ "# !#'4&? # 3' D#3D/DG!'
+1!)' H##(+ "# ")& D '.;+ E$,&)#1+&' $'(' *)&'&4&,' ")& $,.# #8 2#G HD/32 #
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+%$--' T1$'"? #8 H##(+6 " +)$--' @& -$*81-' 8#,' ")& 88 !&,+ #8")& ' * 2FE
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)#1+&6 $-")#1.)' +1!)' #1,"&&' 3$?+ +)$--' '#")$4& &92 ,&(6 ")&,&
"# @& :&2" *$" '.' ")& (1& '",?")&,&#8 (1, '.' ")& &%$ '(&,' #8
+1!)' #1,"&&' 3$?+' $'(' 8")& 31"&+ (1& 12#" $'? H##(+ +# * I 3 DE 2#G
!#'4&?&(' "# ")& D '.;+ E$,&)#1+& +)$--' '#" @& 2$ (' * ") '),&& ("2/4DE # 3
#'")+ $8"&,'+1!)' #1,"&&' 3$?+ +)$--')$4& &92 ,&(6 "#.&")&,' * ")' C2 G # "/DD
$--')$,.&+ #8 &%#4$-' $'(' E$,&)#1+& &'"6 ")& +$%& +)$--' @& B #3"E!'
+#-(6 $'(' ")& 5,#(1!&")&,&#8 +)$--' @& $22- &(6 8 ,+" "# ")& 5$?%&'" GE 026
#8 ,& .)" $'(')$,.&+6 '&9" #8 31" &+6 $'(' ")& 4&,2-1+6 8 $'?6 OD E 7G
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< ' '(' @& "81,")&,'&'$!"&(')$" ")& 5&,+#' &'"&, '.' $'? --' #8 '",?
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12#" ")& 8 ,+" 2&,8&!" '",?")&,&#86 #,' 8#,' 5$?%&'" #8 31"? 12#"
")& "$: '.'#1" #8")& E$,&)#1+&6 #,' *)&")&,' +1!)' H##(+ @& 8,&& #8
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$%& #8")&) 26 $'('#8")& $+"&,'#8")&) 2 ' *) !)' ")& H##(+
*&,& %2#,"&(6 $'(' #8 ")& 5-$!& 8,#% *)&'!& ")&?' *&,& @,#1.)"6
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@& *$,&)#1+&(6 $'(' ")& $%& #8 ")& 5&,+#' ' *)#+& $%& ")&
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H##(+6 $'(' ")& 1%@&,' $'(' 3&'#% '$"#' #,' 3&+!, 2"#' #8")&
,&+2&!" 4& 5$!:$.&+ !#'"$ ' '.' ")& H##(+6 $'(' ' ")& $,. ' #8
+1!' --' +)$--' (&- '&$"&")& ,&+2&!" 4& $,:+ $'(' 1%@&,+ #8 +1!)'
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%$?' ,&C1 ,&6' #8' +1!)' --6' '' *) !)' $--' 1%+' $'(' 1%@&,+' %$? @&' &92,&++&(' '' .1,&+6' $'(' ")&' 5$," !1-$,+' "#' @&' #'"$ '&(' '' +1!)' --' +)$--' @&' *, ""&'' $'(' $,,$' .&(' '' +1!)' #,%' $'(' $' '&,6' $'(' ")&' 1%@&,' #8' +1!)' 312- !$"&+' +)$--' @&' +1!)' $+' ")&' #--&!"#,' $'(' #'",#--&,A' +)$--' ,&C1 ,&' $'(' +1!)' --' @& ' .' (1-?' + . '&(' @?' ")&' #--&!"#,' $'(' #'",#--&,6' $'(' ",$'+% ""&(' "#' ")&' $'(' .' E$ "&,6' +)$--' @&' ")&' E$,,$'' "#') %' 8#,' ")&' -$'"- ' .' #,' (&- 4&, ' .' #8' +1!)' H##(+

7' .' #3/6' E 4#DG' E"27' OD' 3"D' @2/^ /2#3

,#213" ' / dDG' +D/E #E' %$7 '", ,+'

' '(' @&' '' 81,")&,' &'$!"&(')$"' &4&,?' 5&,+#2' *)#' +)$--' %$:&' #,' !$1+&' "#' @&' %$(&' $'?' +1!)' '",?' ' *$,(+' #8' $'?' H##(+6' '#'' @& ' .' (1-?' $1")#, L&(' ")&,&"#' @?' ")&' 5,#2, &"#,' #,' #'+ . '&&' #8' +1!)' H##(+6' +)$--' 8#,' &4&,?' +1!)' 88&'!&' 8#,8& '' ")&' 1%' #8' '&')1'(,&(' 5#1'(+'] 5,#4 (&(' $-*$?+6' ")$"' '#' +1)' 5&'$-"?' +)$--' &9"&'(' #,' @&' (&&%&(' "#' &9"&'(' "#' $'?' 5&,+#'' $!" ' .' V'(&,' ")&' 3 ,&!" #'+' #8' ")&' +&4&,$-' 3#!:' #%2$' &+' #,' #")&,' #,2#,$"&' #(&+' $1")#, L&(' @?' $*' "#' 2$++' '", &+

% 3' F27 G' I#7DEE' 24/DD^ #4' Z 3"' B 2# .DE3!' =DC /3!' 2#G' 3"D/' * HI^ OD#3E!' !

' '(' @&' '' 81,")&,' &'$!"&(6')$"6' '#' -'",?' '#,' $'?' E$,,$'' 8#,' ")&' -$'(' .' #8' $'?' H##(+6' #,' 8#,' ")&' "$: ' .' #8' $'?' H##(+' #1'' #8' $'?' E$,&)#1+&6' +)$--' @&' (&&%&(' 4$- (6' 1'-&++' ")&' 5$," !1-$,+' #8' ")&' H##(+' $'(' 5$!:$.&+' '' +1!)' '",?6' +)$--' !#,"&+2#'(' * ")' ")&' 5$,N " !1-$,+' #8' ")&' H##(+' $'(' 5$!:$.&+6' 21,2#," ' .' "#' @&' " @&' +$%&6' 2' ")&' &2#,"' #8' ")&') 26' $'(' '' ")&' $' 8&+"6' *)&,&' $' $' 8&+'' +' ,&C1 ,&(6' $'(' '' ")&' &," 8 !$"&' #,' #")&,' 3#!1%&''6' *)&"&' $'?' +' ,&C1 ,&(6' @?' *) !)' ")&' %2#,"$" #'' #,' '",?' #8' +1!)' H##(+' +' $1")#, L&(6' '#,' 1'-&++' ")&' H##(+' +)$--')$4&' @&&'' 2,#2&,-?' (&+!, @&(' '' +1!)' '",?' @?' ")&' 3&'#% '$" #'+' $'(' * ")' ")&')$,$!"&,+' $'(' ,!1%+"$'!&+' $!!#,(' .' "#' *) !)' +1!)' H##(+' $,&' !)$,.&(' * ")' 31"?' #,' %$?' @&' %2#,"&(6' & ")&,' "#' @&' 1+&(' '' ")&' 3 ' "&(' D ' .(#%6' #,' "#' @&' *$,&)#1+&(' 8#,' 92#,"$" #'' #' -?' $'(' $'?' H##(+' "$:&'' #,' (&- 4&,&(' #1'' #8' $'?') 26' #,' #1'' #8' $'?' E$,&)#1+&6' #,' 8#,' ")&' 3&- 4&,?' #8' *) !)6' #,' 8#,' $'?' ,(&,' 8#,' ")&' 3&- 4&,?' #8' *) !)6' 8,#%' $'?' E$,&)#1+&6' 3&%$'(' +)$--')$4&' @&&'' %$(&6' '#'')$4 ' .' @&&'' (1-?' &'"&,&(6' +)$--' @&' 8#,8& "&(

2#G' *DEH/ C^ 3 #' . GE!

GE' # 3' C/ CD/76' D#3D/DG!' . /.D 3DG

' '(' @&' '' 81,")&,' &'$!"&(6')$"' 8' ")&' H##(+' '' +1!)' '",?' @&' !)$,.&(' "#' 2$?' 31"?' $!!#,(' .' "#' ")&' 1%@&,6' &$+1,&6' #,' E& .)'' ")&,&#86' +1!)' 1%@&,6' &$+1,&6' #,' E& .)' +)$--' @&' +"$"&(' '' ")&' '",?' $'(' 8' ")&' H##(+' '' +1!)' '",?' @&' !)$,.&(' "#' 2$?' 31"?' $!!#,(' .' "#' ")&' <$-1&' ")&,&#86' +1!)' <$-1&' +)$--' @&' +"$"&(' '' ")&' '",?6' $'(' +)$--' @&' $88 ,%&(' @?' ")&' 3&!-$,$" #'' #8' ")&' %2#,"&,' #,') +' :'#*'' .&'"6' *, ""&'' 12#'' ")&' '",?6' $'(' $""&+"&(' @?') +' .'$"1,&' $'(' 8' ")&' H##(+' '' +1!)' '",?' @&' !)$,.&$@-&' $'' ")&' 2" #'' #8' ")&' 88 !&,+' #8' 1+"#%+6' & ")&,' $!!#,(' .' "#' ")&' 1%@&,6' &$+1,&6' #,' E& .)' ")&,&#86' #,' $!!#,(' .' "#' ")&' <$-1&' ")&,&#86' ")&' $+' *&--' +1!)' 1%@&,6' &$+1,&6' #,' E& .)' 6' $+' $-+#' +1!)' <$-1&6' +)$--' @&' '"- :&' $''&,' +"$"&(' '' ")&' '",?6' $'(' $'?' 8' $'?' 5&,+#'' %$:&' +1!)' 3&!-$,$" #'' 6' '#'' @& ' .' ")&' %2#,"&,' #,') +' :'#*'' .&'' (1-?' $1")#, L&(' @?') %6' M1!)' 5&,+#'' +)$--' 8#,8& '' ")&' 1%' #8' '&')1'(,&(' 5#1'(+' $'(' +1!)' 3&!-$,$" #'' +)$--' @&' %$(&' '' $'?' #8' ")&' 8#,%+' $'(' #' ' .' 12#'' ")&' 5&,+2'' @?' #,' '' @&)$-8' #8' *)#%' ")&' +$%&' +)$--' @&' %$(&' ' X")$"' +' "#' +$?6[

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' '(' @&' "' 81,")&,' &'$!"&(6')$"' 8' 12#'' 9$% '$" #'' "' GE' I#GD/^
+)$--' $22&$,' "#' ")&' 88 !&,+' #8' ")&' 1+"#%+' ")$"' +1!)' H##(+' $,&' '#"' F27IDG!'
4$-1&(' $!!#,(' .' "#' ")&' ",1&' <$-1&' ")&,&#86' "' +)$--' @&' -$*81-' 8#,' +1!)' '..HD/E' O26'
88 !&,+' "#' (&"$ '' $'(' +&!1,&' +1!)' H##(+6' $'(' X* ") '' 4&' 3$?+' 8,#%' GD32 #
")&' $'('.'")&,&#8' 8' "' @&' ''")&' 5#,"+' #8' ' '#,' ' " '
#,' * ") '' &4&'' 3$?+' 8' ''$'?' #")&,' 5#," ''")&' V' "&(' D '.(#%6' #,'
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")&') .)&,' $"&' #8' 31"?6' "' +)$--' @&' -$*81-' 8#,' +1!)' 88 !&,+' '' - :&'
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#%% ++ #'&,+' #8' +' $>&+"?;+' 1+"#%+' +)$--' ")&,&12#'' '' $'?' #8' 'CD/HD#3!'
+1!)' $+&+' !$1+&' ")&' %#1'' #8' +1!)' <-1" #'6' "#.&")&,' * ")' $'' 3 'OD' C2 G'
(("#'' #8' &'' 5#1'(+' ' *' ")&,&#'6' $'(' $-+#' ")&' 31" &+' OC /3D/
2$ (' 12#'' +1!)' '",?6' "#' @&' 2$ (' "#' ")&' %2#,"&,' #,' 5,#2, &"#,' #8'
+1!)' H##(+' '' 81--' $" +8$!" #'' 8#,' ")&' +$%&6' $'(' +)$--' (+2#+&' #8' +1!)'
H##(+' 8#,' ")&' &'&8 "' #8' ")&' ,#*'' ' $'(' 8' ")&' 5,#(1!&' #8' +1!)' $-&' GE' 3 'OD'
+)$--' &9!&&(' ")&' 1%+' +#' 2$ ('$'(' $--')$,.&+' '!1,,&(' @?' ")&' ,#*'6' E 7G'. /'3"D'
'&' # &"?' #8' ")&' 4&,2-1+' +)$--' @&' . 4&'' "#' ")&' 88 !&,' #,' 88 !&,+' D#D. 3' .'3"D'
*)#')$(' (&"$ '&(' $'(' "$:&'' ")&' H##(+' ' $'(' ")&' #'&?' ,&"$ '&(' 8#,' (/ Z#
")&' &'&8 "' #8' ")&' ,#*'' +)$--' @&' 2$ (' '"#' ")&' $'(+' #8' ")&' #-N
-&!"#,' #8' ")&' 1+"#%+6' * ")' ")&' D'#*-&(.&' #8' ")&' #'",#--&,6' $'('
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' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(')$"' ")&' $+' '($
<$-1&' #8' H##(+' %2#,"&(' @?' ")&' . ' ' #%2$'?' +)$--' @&' $+!&,B' #%2$'?"#
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1!" #'' $"' ")&' 21@- !' $-&+' #8' ")&' +$(' #%2$'?' $'(' ")$"' ")&' +$('
#%2$'?' +)$--' 8$,-?' $'(' #2&'-?' &92#+&' "#' $-&' $'(' !$1+&' "#' @&' +#-('
$--' +1!)' H##(+' +#' !)$,.&(' "#' 2$?' 31"?' $!!#,('.' "#' ")&' <$-1&'
")&,&#8' @?' *$?' #8' 21@- !' 1!" #'' '' ")&' "?' #8' ' * ") ''
),&&' &$,+' 8,#%' ")&' %2#,"$" #''")&,&#86' $'(' +)$--' . 4&' (1&' #" !&'
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< ' '(' @&' "' 81,")&,' &'$!"&(')$"' 8' ")&' %2#,"&,' #8' $'?' 77 .' 4"3'
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@&8#,&' ")&' #--&!"#,' #,' #'",#--&,' ")$"')&' !$'"#' 8#,' E$'' #8' 81--' # 3']# Z#' W
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-$*81-' 8#,' ")&' #--&!"#,' $'(' #'",#--&,' 4&' $'' '",?' @?' --' #8'
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"#'' *) !)' !$'' @&' . 4&'6' $'('"#' .,$''' $' E$,,$''")&,&12#'6' ''#,(&,' ")$''' ")&' +$%&' %$?@&' 2,#4 + #'$--?6' -$'(&(6' $'(' %$?@&' +&&'' $'(' &9$% '&(' @?' +1!)' %2#,"&,6' '' 5,&+&'!&' #8'")&' 2,#2&,' 88 !&,+' $'(' * ") '' - >&&' 3$?+' $8"&,' $'?' H,##(+' +)$--')$4&' @&&'' +#' -$'(&(6' ")&' %2#,"&,' +)$--' %$:&' $' 81--' #,' 2&,8&!'' '",?' ")&,&#86' $'(' +)$--' &")&,' (#*''$--' 31" &+' *) !)' +)$--' @&' (1&' $'(' 2$?$@-&' 12#''+1!)' H##(+6 #,' +)$--' (1-?' *$,&)#1+&' ")&' +$%&6' $!!#,('.' "#' ")&' 51,2#,'' #8'")&' 81--' #,' 2&,8&!'' '",?' #,' '", &+' +#' %$(&' 8#,' +1!)' H##(+6' #,' 8#,' ")&' +&4&,$-' 5$,"+' #,' #,"+' ")&,&#8]' 5,#4 (&(' $-*$?+6' ")$'' 8' *)&'' 81--' #,' 2&,8&!'' '",?' @&' $'' $'?' %&' %$(&' 8#,' $'?' H##(+' 2,#4 + #'$--?' -$'(&(' $+' $8#,&+$ (' @?' --' #8' .)"6' +1!)' '",?' +)$--' '#'' @&' %$(&' '' %$''&,')&,& 'B@&8#,&' ,&C1 ,&(' 8#,' ")&' (1&' -$'('.' #8' H##(+6' +1!)' H##(+' +)$--' @&' (&&%&(' "#' @&' H##(+' -$'(&(' * ")#1'' (1&' '",?' ")&,&#86' $'(' +)$--6' @&' +1@>&!'' "#' ")&' - :&' #,8& "1,&' $!!#,('.-?] 5,#4 (&(' $-+#6' ")$'' 8' $'?' 1%' #8' #'&?' +)$--')$4&' @&&'' (&2#+ "&(' 12#'' $'?' '",?' @?' --#8' .)"6' #'' $!!#1''' #8'")&' 31" &+' *) !)' %$?' @&' 8#1'(' "#' @&' 2$?$@-&' #'' ")&' H##(+' '"&'(&(' ")&,& '6' '' +)$--' @&' -$*81-' 8#,' ")&' 88 !&,+' #8' ")&' 1+"#%+' "#' (&-4&,6' '' 4 ,"1&' #8' ")&' E$,,$''' 8#,' -$'('.' ")&' +$%&6' $'?' T1$''' "?' #8' H##(+' ")&' 31"?' #'' *) !)' +)$--' '#'' &9!&&(' ")&' 1%' +#' (&2#+ "&(

GE' 3 ' '/' OD' 32]D#' 3 ' ? #4aE' @2/D^ " IED' N 2#G' #' '#D' B #3"' O26' OD' E 7G

<' '(' @&' ''81,")&,' &'$!"&(6')$'' '' (&8$1-''#8'2&,8&!'' '",?' * ") ''+1!)'),&&' 3$?+6' +1!)' H##(+' +)$--' @&' "$:&'' "#' ")&' D '.;+' E$,&)#1+&' @?' ")&' 88 !&,+' #8' ")&' 1+"#%+' ? $'(' 8' ")&' %2#,"&,' +)$--' '#"6' * ") '' '&' #'")' $8"&,' +1!)' -$'('.6' %$:&' 2&,8&!'' '",?' #,' '", &+' #8' +1!)' H##(+6' $'(' 2$?' ")&' 31" &+' ")&,&#'6' #,' #'' +1!)' 5$,"+' $+' !$'' @&' &'"&,&(' 8#,' #%&' V+&6' "#.&")&,' * ")')$,.&+' #8' &%#4$-' $'(' #8' E$,&)#1+&' &'"6' +1!)' H##(+' +)$--' @&' +#-(' 8#,' ")&' 5$?%&'' #8' +1!)' 31" &+' X#,' 8#,' 92#,"$" #'6' 8' ")&?' @&' +1!)' $+' !$''#'' @&6&''&,&(' 8#,' #%&' V+&6' #,' +)$--' '#'' @&' *#,")' ")&' 31" &+' $'(')$,.&+6[' $'(' 8#,' ")&' 5$?%&''' #8' +1!)')$,.&+' ' $'(' ")&' T4&,7' 2-1+6' 8' $'?6' +)$--' @&' 2$ (' "#' ")&' %2#,"&,' #,' 5,#2, &"#,' ")&,&#8

2E3' #G 2' (OC2#6' O26' D#3D/' O6' 7' .' 4"3N 2#G' O2]D' CD/.DH3' #3/6' Z 3" #' "/DD' B #3"E

< ' 5,#4 (&(' $-*$?+6' $'(' @&' ''81,")&,' &'$!"&(')$'' '' +)$--' @&' -$*81-' 8#,' ")&' . ' ' #%2$'?6' =* ")#1' %$: '.' ")&' 5,##8')&,& 'B@&8#,&' ,&C1 ,&(6' "#' &'"&,' @?' --' #8' .)"6' "#' @&' -$'(&(' $'(' +&!1,&(' ''+1!)' $''&,' $+' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' 1+N "#%+' +)$--' ,&C1 ,&6' $'?' H##(+' %2#,"&(' @?' ")&%6' $'(' $-+#' $'?' H##(+' %2#,"&(' @?' $'?' #")&,' 5&,+#'' 8,#%' 5-$!&+' * ") '' ")&' % "+' #8' ")&')$,"&,' #8' ")&' +$ (' #%2$'?6' * ")'")&' #'+&'' #8' +1!)' 5&,+#'6' 12#'' #'(' "#'' "#' !$1+&' 2&,8&!'' '",?' "#' @&' %$(&' #8' +1!)' H##(+' * ") ''),&&' #'")+' 8,#%' ")&' 3$"&' #8' ")&' %2#,"$" #'' ")&,&#86' &")&,' "#' *$,&)#1+&' ")&' +$%&' #,' "#' 2$?' ")&' 31" &+' ")&,&#'' * ") '' ")&' %&+' $'(' +)$--' @&' !)$,.&(' #'' +1!)' %2#,"&(' H##(+6' 8' +1!)' '",?' +)$--' '#'' @&' %$(&' 2$?$@-&' "#' ")&' 31"?' #'' +1!)' 5&,+#'' #'' #'' +1!)' '",?' -' @&' ")&' $'(' H##(+' #8' +1!)' 5&,+#'' #8' &?' ")&,&#86' $'(' +#-(' "#' $'?' +1!)' 1%' #8' ")&' %2#,"&,' #8' +1!)' H##(+6' $'(' ")&' 9' $-&'($,' #'")+' 8,#%' ")&' -&'($,' #'")+' 8,#%' +1!)' %&' $'(' +1!)' H##(+' +)$--' @&' +&!1,&(' ''+1!)' 5-$!&+' $'(' $+' ")&' #%% ++ #'&,+' #8' +0 $>&+"?;+' 1+"#%+' +)$--' ,&C1 ,&6' $'(' 1'" -' ")&' +$%&' +)$--')$4&' @&&'' (1-?' &'"&,&(6' $'(' ")&' 31" &+

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H##(+' @?' --' #8' .)"' '')+' #*'' $%&6' 12#'' . 4 '.' +188 ! &'" C /3D/E' 026'
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$>&+"?;+' 1+"#%+6' * ")' ")&' - :&' #' ("#'+' $+' $,&' ,&C1 ,&(' #8' ")&' (0C2#6'
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+$ (' #%2$'?' %$?' @&' +&!1,&(' '' %$''&,' @&8#,&' %&'" #'&(HI/DG' #'

@2/D" IEDE

' '(' @&' "' 81,")&,' &'$!"&(')$"' '' (&8$18" #8' 2&,8&!"' GD.2I73'
'",?' * ") ''),&&' #'")+' $+' $8#,&+$ (6' #,' #8' (1&' '",?' $'(' 5$?B
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+' $>&+"?;+' 1+"#%+' "#' !$1+&' $'?' +1!)' H##(+' '' ,&+2&!" #8' *) !)'
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< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' *)&,&' $'?' 5$!:$.&' #,' GE' 72#GDG'
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+$ (' #%2$'?' $' &!& 2" 8#,' ")&' #' &+' +#' 2$ (6' #'' ")&' !!#1'" #8
")&' #--&!"#,' #8' ")&' 1+"#%+6' *) !)' &!& 2"6' *)&'' (&- 4&,&(' "#' +1!)'
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&+" %$"&' +1!)' 3$%$.&6' #,' 8' ")&' %2#,"&,' @&' '#"' +$" +8 &(' * ")' ")&'
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.'+/ CD/36' OD'
3' H"2#4DGN

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'' ")&' 5&,+#'' @?' *)#%' #,' #'' *)#+&' !!#1''' ")&' +$%&')$4&' @&&''
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,&B %2#,"&(' '"#' ")&' V' "&(' D '.(#%' 8#,' #%&' V+&' V2#'' ")&'
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5$++&'.&, #8 +1!)) 2 "# *)#% $'? +1!) +1,2-1+ "#,&+ %$? ED .3"D
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GE' . /' * I36! I#36!' /' * /2ZO2H]!' H' O/ I4"3' . / " C O D#3

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D2/H"D/' O26' CD#' 2#6' +2H]24D' N O13' .'H //DH3!' O I E3' /DC2H]

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< ' '(' @&' "' 81,")&,' &'$!"&(')$"' @&8#,&' $'?') 2' +>$ ' @&' !-&$,&(' 1"*$,(+' $"' $'?' 5#,"' '")&' V ' "&(' D ' .(#%' #,' '")&' 8#,' 5$,"+' @&?#'(' ")&' &$+6' * ")' $'?' H##(+' +) 22&(' #" @#$,(6' ")&' +$%&' '' +1!)' 5#,"6' ")&' $+"&,' +)$--' (&- 4&,' $' #'"&'"' #8' +1!)') 2' "#' ")&' &$,!)&,6' +&"" ' .' 8#,")' ")&' $%&' $'(' #''$.&' #8' +1!)') 26' $'(' ")&' 5-$!&' #,' 5-$!&+' #8')&,' 3&+" '$" #'6' $'(' ")&' $%&' #8' ")&' $+"&,6' $'(' $-+#' $' !!#1'"' #8' ")&' H##(+' +) 22&(' #" @#$,(6' $'(' #8' ")&' 5$!:$.&+' !#'"$ ' .' +1!)' H##(+6' $'(' #8' ")&' $,:+' $'(' 1%@&,+' 12#'' +1!)' 5$!:$.&+6' $'(' $ - :&' !!#1'"' #8' ")&' H##(+' @#$,(6' 8' $'?6' *) !)')$(' @&&1' ,&2#,"&(' '*$,(+' 8#,' 92#,"$" #' '' +1!)') 26' +#' 8$,' $+' $'?' #8' +1!)' 5$," !1-$,+' !$'' @&' :'#*'' @?') % ' $'(' $-+#6' @&8#,&' ")&' -&$,$'!&' #8' +1!)') 26' ")&' #!:&"+6' * ")' ")&' '(#,+&%&'"+' $'(' -&$,$'!&+' ")&,&#' 8#,' ")&' H##(+' +) 22&(6' +)$--' @&' 8 '$--?' (&- 4&,&(' @?' ")&' ,&+2&!"' 4&' R) 22&,+' #8' +1!)' H##(+' "#' ")&' &$,!)&,6' *)#' +)$--' 8 -&' ")&' +$%&' "#.&")&,6' $'(' +)$--' $""$!)' * ")' $' &$-' $' $@&-' "#' ")&' -&6' +)#* ' .' ")&' 1%@&,' #8' #!:&"+' !#'"$ '&(' '' ")&' -&6' $'(' +)$--' !#%2$,&' ")&' 5$," !1-$,+' #8' ")&' H##(+' '' ")&' #!:&"+' ")&' 5$," !1-$,+' #8' ")&' H##(+' '' +1!)' #'"&'"6' $'(' +)$--' $""&+"' ")&' #,,&!"&+' @?') +' .'$"1,&' #'' ")&' $@&-' $'(' #'"&'"' $'(' ")&' $+"&,' #8' ")&') 2' +)$--' %$:&' $'(' +1 . '' $' 3&!-$,$" #'' @&8#,&' ")&' #--&!"#,' #8' #'"#--&,' #8' ")&' ,1")' #8' +1!)' #'"&'"' $'(' +)$--' $+#' $'+*&,' "#' ")&' #--&!"#,' #,' #'"#--&,' +1!)' T1&+" #'+' $+' !#'!&,' '.' ")&') 26' ")&' $,.#' $'(' ")&' '&(' <#?$.&6' $+' +)$--' @&' (&%$'(&(' #8') %' $'(' ")&' #--&!"#,' #,' #'"#--&,' +)$--' !-&$,' +1!)') 2' 8#,')&,' '&(' <#?$.&6' $'(' +)$--' '#" 8?' +1!)' -&$,$'!&' $'(' ")&' 3$"&' ")&,&#8' 12#'' ")&' #'"&'"' $'(' 12#'' ")&' $@&-' #8' ")&' #!:&"' #8' #!:&"+6' $'(' 12#'' ")&' < !"1$-- '.' --6' $'(' $-+#' '' ")&' ##:' #8') 2+' '", &+' 1"*$,(+6' 8#,' ")&' '8#,%$" #'' #8' $--' 5$," &+' '"&,&+"&(6' $'(' +)$--' ",$'+%' ")&' #'"&'"' $'(' ")&' #!:&"+6' $'(' ")&' < !"1$-- '.' --' "#' ")&' &$,!)&,' $'(' ")&' 5$," !1-$,+' "#' @&' !#'"$ '&(' '' +1!)' #'"&'"

(H]D3E' 3 ' OD' GD7 FD/DG' O6' " CCD/E' 3 ' D2/H"D/' 3 ' OD' . 7DG

B 2E3D/' 3 ' GDH72/D' 3 ' (#3D#3

(7D2/2#HD' # 3 . DG' #' (#3D#3!' #' + 7D!' 2#G' #' H3 I 277 #4' 77!' 2#G' #]

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")&' < !"1$-- '.' --' +)$-- ")&,&12#'' @&' (&- 4&,&(' @?' ")&' &$,!)&,' "# A 7D' .'
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1+"#%+' 8#,' ")$" 51,2#+&' $'(' +1!)' -&' #8' #!:&"+' $'(' < !"1$-- '.' 77' GD7 FD/DG'
--6 +# (&- 4&,&(6 +)$-- @&' :&2" @?' ")&' $+"&,' #8' +1!)') 2' $+' ")&' 3 ' B 2E3D/' 2E'
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'", &+' 1"*$,(+6 8#,' ")&' '8#,%$" #'' #8' $-' 5$," &+' '"&,&+"&(' ' $'(' 77' 2#G' #
+1!)' < !"1$-- '.' --' +)$-- @&' :&2" @?' ")&' $+"&,' #8' +1!)') 2' $+' ")&']
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* ")' ")&' #!:&"+6 +)$-- @&' ")&' -&$,$'!&' #8' ")&') 2' 8#,' ")#+&'
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#' 2772E3' B 2E3D/' 0 26' D#3D/' GE' . /' C/ F23D' ED' .' D7.' 2#G' (/DZ

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,&*' #8' $' ?' #,& . '') 2' *) !)' +' "#' (&2$," '' $--$+"' 8,#%' ")&'
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#' ' @#$,(')$-: ' 1@@ +)' @?' *$?' &,8' $--$+"6' "$: &' * ")' ")&%' 8#,'
")& ,' 2, 4$"&' V+&' $' ?' +%$--' T1$' " " &+' #8' H##(+' (' $' 18$!N
"1,&6' "' +)$--' @&' -$*81-' 8#,' +1!)' $+"&,6' * ")#1"' &' "&, ' .' +1!)') 2'
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H,&*6' +"$" ' .' '' +1!)' -&$,$' !&+' ")&' 5$," !1-$,+' #8' ")&' H##(+' $' ('
5$! : $. &+6' $' (' ")&' $%&+' #8' " ,&' ,&*' *)#')$--' ># ' "-?6' #,' +&4&,$--?'

" C' 3 ' OD' GDD O DG' #' 2772E3

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#' ' ")&' $@&-' "#' ")&' #! : &"' #,' #! : &"+6' $' (' #' ' ")&' < !"1$-- ' .' --6'
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' . . HD/E' 0 26' O 2/G' 2#6' " C' 2.3D/' (7D2/2#HD

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")&' 88 !&,+' #8' ")&' 1+"#%+' "#' .# #'' @#$,(' $' ?') 2' $8"&,' -&$,$' !&'
1"*$, (+6' * ") '' ")&' % "+' #8' $' ?' 5#," '' ")&' V' "&(' D ' . (#%' #,' ''
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(&%$' (' ")&' -&' #8' #! : &"+' $' (' ")&6' < !"1$-- ' .' --6' $' (' 8' ")&,&' @&'
$' ?' H##(+' #,' "#,&+' #'' @#$,(' '#"' !#'"$ '&(' '' ")&' '(#,+&%&' '"+' #''
")&' #! : &"+' '#,' '' ")&' < !"1$-- ' .' --6' +1!)' H##(+' #,' "#,&+' +)$--' @&'

GE' # (H]D3E' 2#G # 3' #' O 2/G +D#2736 (H]D3 .27E . DG 5&'$-"?

8#,8&' "&(' $' (' 8' $' ?' H##(+' !#'"$ '&(' '' +1!)' '(#,+&%&' '"+' @&' '#"'
#'' @#$,(6' ")&' $+"&,' +)$--' 8#,8&' ")&' 1,$' #8' *&' "?' 5#1' (+' 8#,'
&4&,?' 5$! : $. &' #,' 5$,!&-' #8' H##(+' !#'"$ '&(' '' +1!)' '(#,+&%&' '"+'
$' (' '#"' #'' @@#$,(' $' (' 8' $' ?' #! : &' @&' $"' $' ?' %&' 8$-+ 8 &(6' ")&'
5&,+#'' *)#' +)$--')$4&' 8$-+ 8 &(' ")&' +$%&6' #,' *)#' +)$--')$4&' * -81--?'
1+&(' ")&' +$%&6' +)$--' 8#,8&' ")&' 1%' #8' '&')1' (,&(' 5#1' (+

" CE' 3 ' O/ #4' 3 ' 23' 323 #E

< ' ' (' @&' "' 81,")&,' &' $!"&(')$"' &4&,?') 2' (&2$," ' .'
8,#%' $' ?' 5#," '' ")&' V' "&(' D ' . (#%' #,' '' ")&' ' ' ' +)$--'
@, ' .' "#' $"' +1!)' "$" #' +' * ") '' ")&' 5#," $+' +)$--' @&' $22# '"&(' @?' ")&'
#%% ++ #'&,+' #8' +' $>&+"?;+' 1+"#%+' 8#,' ")&' -$' (' .' #8' 88 !&;+'
8,#%' +1!)') 2+6' #,' 8#,' 81,")&,' 9$% '$" #'' 2,&4 #1+' "#' +1!)' 3&N
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' < ' ' (' @&' "' 81,")&,' &' $!"&(')$"' '#' 3,$*@$! :' #,'
#1' '"?' +)$--' @&' $--#*&(' 12#'' ")&' 92#,"$" #'' 8,#%' ")&' V' "&(6' D ' .B
(#%

K L B ' ' (2C V V

(#%' #8' $'?' H##(+' 1'-&++' +1!)' H##(+' +)$--')$4&' @&&'' &'"&,&(' '' ")&' . 6
$%&' #8' ")&' 5&,+#'' *)#' *$+' ")&' ,&$-' *'&,'")& ;&#8' $'' ")&' %&' #8' BBBB
'",?' $'('+) 22 '.6' #,' #8' ")&' 5&,+#'' *)#')$(' $!"1$--?' 21,!)$+&(' $'(
+) 22&(' ")&' +$%&6' '') +' #*'' $%&' $'(' $'') +' #*'' $@ ->"?' $'(' a
+:6' #'' #%% ++ #'6' $!!#,('.' "#' ")&' 5,$!" !&' #8' &,!)$'"+6' $'(' #3/6' #
*)#' *$+' $'('+)$--')$4&' !#'" '1&(' "#' @&' &'""-&(' '') +' #*'' .)'' "#
+1!)' 3,$*@$!:' #,' #1'"?6' &9!&2'' '' ")&' $+&+' @&,& 'B$8"&,' 2,#4 (&(' 5 '
8#,' = ((
BD/H"2#3

< ' '(' @&' '' 81,")&,' &'$!"&(' 5 ' +1!)' *'&,' ' *2' +
% ++ #'' &,!)$'' +)$--' %$:&' $'(' +1@+!, @&' $' ' ' 12#'' '
3&@&'"1,&' ")$'' ")&' H##(+' %&'" #'&(' ")&,& '')$4&' @&&'' ' 82' 2,JR7&,'?6'
2#,"&(6' $'(')$4&' '#'' @&&'' ,&B-$'(&(' $'(' $,&' '#'' '"&'(&(' "#' @&' 2#G' 3 ' = 4"3 '
,&B-$'(&(' '' $'?' 5$,'' #8' ")&' V' "&(' D '.(#%6' '#,' '' ")&' ' ' ' 3 ' */2ZO2H]'
X1'-&++' &'"&,&(' 8#,' ")&' ' ' #P' '#,' '' ")&' +-$'(+' #8' 1 ' #,'
1 ' $'(' ")$'')&' *$+' ")&' ,&$-' *'&,' ")&,&#8' $'' ")&' %&' #8' '",?'
$'('+) 22 '.6' #,' ")$'')&')$(' 21,!)$+&(' $'(' ('+) 22&(' ")&' +$ (' H##(+' ''
) +' #*'' $%&' $'(' $'') +' #*'' $@ - "?' $'(' +:6' #'' #%% ++ #'6' $+'
")&' $+&' %$?' @&6' $'(' ")$'')&' *$+' $'(' !#'" '1&(' "#' @&' &'""-&(' "#' ")&'
3,$*@$!:' #,' #1'"?' ")&,&#'' '') +' #*'' .)'"]' 5,#4 (&(' $-*$?+' .' */2ZO2H]!'
")$'' 8' +1!)' *'&,' #,' &,!)$'' +)$--' '#'')$4&' 21,!)$+&(' ")&' .)'' 77A
"#' +1!)' 3,$*@$!:' #,' #1'"?')&' +)$--' (&!-$,&' 1'(&,') +' $'(' 12#'' 7$%&#7<&,'
")&' '",?' $'(' 12#'' ")&' 3&@&'"1,&' ")&' 5&,+#'' *)#' +' &'""-&(' ")&,&"#6' +#'' &'" :('
$'(' ")&' $%&' #8' +1!)' 5&,+#'' +)$--' @&' +"$"&(' '' ")&' #!:&'' $'(' '' 3 ' OD' GD '
")&' 3&@&'"1,&' $'(' ")&' &!& 2'' #8' +1!)' 5&,+#'' #'' ")&' 3&@&'"1,&' U.-$,&(6'
+)$--' @&' ")&' 3 +!)$,.&' 8#,' +1!)' 3,$*@$!:' #,' #1'"?

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' 8' +1!)' *'&,' #,' 4D#3' O26'
&,!)$'' +)$--' @&' ,&+ (&'' '' +#%&' 5$,'' #8' ")&' V' "&(' D '.(#%' C2EE' #3/6!'
@& '.' %#,&' ")$'' *&'"?' -&+' 8,#%' ")&' 1+"#%' #1+&' #8' ")&' 5#,'' #8' 2#G' /DHD FD'
) 2%&'"6')&' %$?' $22#' '' $'?' 5&,+#'' "#' @&') +' .&'' "#' %$:&' $'(' */2ZO2H]!'
2$++') +' '",?6' $'(' "#' !-&$,' $'(' +) 2') +' H##(+6' $'(' "#' ,&!& 4&' 8#,' 2#G' O2]D'
) %' ")&' 3,$*@$!:' #,' #1'"?' 2$?$@-&' #'') +' 3&@&'"1,&6' 8' 2$?$@-&' 3"D' *DH72/2^
"#') %6' 2,#4 (&(' ")&' $%&' #8' +1!)' .&'' $'(' ")&' &+ (&'!&' #8' +1!)' 3 #!' 2#G'
*'&,' #,' &,!)$'' @&' +1@>#'&(' "#' ")&' $%&' #8' +1!)' *'&,' #,' 2#EZD/'
&,!)$'' '' ")&' '",?' $'(' '' ")&' #!:&'' 8#,' +1!)' H##(+' $'(' +1!)' YIDE3 #E'
.&'"6' @& '.' (1-?' '8#,%&(6' +)$--' %$:&' 3&!-$,$"#'' 12#'' ")&' '",?6' . /' ' Z#D/'
8' $'?' @&' '&!&++$,?6' $'(' $-+#' 12#'' ")&' 3&@&'"1,&6' '' @&)$-8' #8' +1!)' # 3'/DE GD#3
*'&,' #,' &,!)$'' "#' ")&' 88&!'' @&8#,&' ,&C1 ,&(' #8' +1!)' *'&,' #,'
&,!)$'"6' $'(' +)$--' $'+*&,' +1!)' T1&+"#'+' "#1!) '.') +' D'#*-&(.&'
#8' ")&' 92#,"$" #'' #8' +1!)' H##(+' $'(' ")&' 5,#2&,"?' ")&,&'6' $'(' #8'
")&' .)'' "#' ")&' 3,$*@$!:' #,' #1'"?6' $+' +)$--' @&' (&%$'(&(' #8') %'
@?' ")&' #--&!"#,' #,' #'",#--&,' $'(' 8' $'?' +1!)' H##(+' @&' &92#,"&(' , #3' 3 H]'
@?' $'?' #,2#,$" #'' #,' #%2$'?' ",$('.' @?' $' R# '' "#!:6' '' +)$--' @&' (OC2#6
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51,2#+&+' $'(' * ")' ")&' - :&' 5#*&,+' "#' $!'' '' ")&,' &)$-8

' '(' @&' '' 81,")&,' &'$!"&(')$'' 8' $'?' H##(+' *) !)' +/ CD/36' .'
$,&' "#' @&' &92#,"&(' 8#,' 3,$*@$!:' @&' ")&' 5,#2&,"?' #8' $'?' 5&,+#'' +D/E #E'
,&+ ('.' @,#$(6')$4 '.' @&&'' !#'+ .'&(' @?' ")&' *'&,' ")&,&#8' "#' O/ 2G' H #^
+#%&' 5&,+#'' $+') +' .&'' ,&+ ('.' '' ")&' V' "&(' D '.(#%6' "#' @&' E 4#DG' "D/D'
&92#,"&(' "),#1.)' ")&' +$%&' "#' 5$,"+' @&?#' ('")&' &$+6' @?' +1!)' .&'"6' 3 '2#' 4D#3!'
12#'' $!!#1'' #8' +1!)' *'&,6' '' +)$--' @&' -$*81-' 8#,' +1!)' 5&,+#'6' 2#G' D&C /3DG'
X@& '. O6' " O' #
2HH I#3' .'
' Z#D/!

' @ ?* + > ' '

X@& '.' ")&' #'+ .'&&' @?' *)#%' $'(' '' *)#+&' $%&' ")&' 31" &+'
'*$,(+' #'' +1!)' H##(+')$(' @&&'' 2$ (6' #,' @ +' -&.$-' &2,&+&''$" 4&6['
''- :&' $''&,6' $+' .&'' 8#,' +1&)' *'&,6' "#' &'"&,6' !-&$,6' $'(' +) 2'
+1!)' H##(+' 8#,') %6' $'(' 12#'' - :&' #'("#'+' "#' ,&!& 4&' 8#,') %' ")&'
3,$*@$!:A2$?$@-&' ")&,&#'

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12#'' ")&' 92#,"$" #'' #8' $'?' H##(+' 1'-&++' +1!)' H##(+' @&' +) 22&('
") ''),&&' &$,+' $8"&,' ")&' 5$?%&'' #8' ")&' 31" &+' '$,(+' ")&,&#' 6'
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")&' 92#,"$" #'' #8' $'?' H##(+' +)$--' @&' 2$ (' $8"&,' ")&' 92 ,$">#'' #8'
*#' &$,+' 8,#%' ")&' 3$"&' #8' ")&') 2%&'' #8' +1!)' H##(+6' $'(' ")$''
'#' 3,$*@$!:' +)$--' @&' $--#*&,-' 12#'' $'?' H##(+' *) !)' -[?' ,&$+#'' #8'
3$%$.&' #,' 3&!$?' +)$--')$4&' @&!#%&' #8' -&++' <$-1&' 8#,' #%&' V+&'
")$'' ")&' %#1'' #8' +1!)' 3,$*@$!:'' $'(' $--' H##(+' +' ($%$.&('
) !)' +)$--' @&' !-&$,&(' 8#,' $'?' 3,$@$!:' +)$--' @&' 8#,8& "&(6' $'(' ")&'
5&,+#'' *)#' !$1+&(' +1!)' H##(+' "#' @&' +#' !-&$,&(' +)$--' 8#,8& '' ")&' 1%'
#8' *#')1'(,&(' 5#1'(+6' #,' ,&@-&' ")&' %#1'' #8' ")&' 3,$*@$!:' ''
+1!)' $+&6' $'' ")&' -&!" #'' #8' ")&' #%% ++ #'&,+' #8' ")&' 1+"#%+

A /.D 31/D +D#2736

EEI #4' 2#G' C2EE #4' *D^ OD#3I/D

' '(' @&' '' 81,")&,' &'$!"&(')$"' 8#,' ")&' 51,2#+&' #8' !#%N
21" '.' $'(' 2$? '.' $'?' 3,$*@$!:' #,' #1''?' 2$?$@-&' 12#'' $'?' H##(+'
(1-?' &''&,&(6' +) 22&(6' $'(' &92#,"&(6' $' 3&@&''1,&' +)$--6' '' (1&' %&'
$8"&,' +1)' '',?6' @&' 2,&2$,&(' @?' ")&' #--&!"#,' $'(' #'',#--&,6' !&," A'
8? 2.' '' ")&' 8 ,+'' '+"$'!&' ")&' '',?' 1"*$,(+' #8' +1!)' H##(+' ' $'('
+#' ##'' $+' ")&' +$%&' +)$--')$4&' @&&'' (1-?6' &92#,"&(6' '$" (' $' #" !&' !#'7B'
"$ ' '.' ")&' 5$," !1-$,+' #8' ")&' ##(+' +)$--')$4&' @&&'' (&- 4&,&(' @?' ")&'
92#,"&,' "#' ")&' &$,!)&,6' ")&') 2%&'' $'(' 92#,"$" #'' ")&,&#8' +)$--'
@&' !&," 8 &(' "#' ")&' #--&!"#,' $'(' #'',(--&26' 12#'' +1!)' _&@&`"1,&6'
@?' ")&' &$,!)&,6' $'(' ")&' 3&>,&''1,&' +)$--' ")&,&12#'' @&' !#%21"&(' $'('
2$++&(' *")' $--' !#'4&' &)" 3 +2$"!)6' $'(' @&' (&- 4&,&(' "#' ")&' 5&,+#''
&'" "-&(' "#' ,&!& 4&' ")&' +$%&

(D/3 H23D' .' 72#G #4' #' E7D' .' B 2#

' '(' @&' '' 81,")&,' &'$!"&(6')$"' '#' 3,$*@$!:' #,' #1''?'
+)$--' @&' $--#*&(' 8#,' $'?' H##(+' &92#,"&(' 8,#%' ")&' V' "&(' D '.(#%'
"#' ")&' & ,' ' ' 1''-' $' &," 8 !$"&' +)$--' @&' 2,#(1!&(' 8,#%' ")&'
#--&!"#,' $'(' #'',#--&,' #8' ")&' 1+"#%+' #8' ")&' ' ' ' #8' ")&'
(1&' -$'(' '.' #8' +1!)' H##(+

+/DEE C2H]^ #4!' 2#G' *DH72/23 #' .' +2H]D/

' '(' @&' '' 81,")&,' &'$!"&(')$"' '#' 3,$*@$!:' #,' #1''?'
+)$--' @&' $--#*&(' 8#,' $'?' H##(+' &92#,"&(' 8,#%' ")&' V' "&(' D '.(#%'
'' $-&+' !-&$,&(' $Y' @& '.' 2,&++B2$!:&(6' 1'-&++' ")&BT1$'' " &+' $'('
T1$- " &+' #8' ")&' H##(+' '' &$!)' #8' +1!)' $-&+' +)$--' @&' 4&, 8 &(' @?' ")&'
$+"&,' 5$!:&,' ")&,&#86' ,6' '' !$+&' #8' 1'$4# ($@-&' @+&'!&6' @?' ")&'
#,&%$'' #8' +1!)' 5$!:&,6')$4 '.' D'#*-&(.&' #8' ")&' #''&''+' #8' ")&'
$-&+6' @?' 3&!-$,$" #'' %$(&' $'(' +1@+!, @&(' 12#'' ")&' #!:&'' @&8#,&'
")&' #--&!"#,' #,' #'',#--&,' #,' 8' +1!)' 5$!:&,' ,&+ (&' %#,&' ")$'' &''
-&+' 8,#%' ")&' 5#,"6' ")&'' @?' 3&!-$,$" #'' %$(&' $'(' +1@+!, @&(6' 12''
$'' !!#1'' #8' +1!)' H##(+6' @&8#,&' $' $. +",$"&' #,' R1+" !&' #8' ")&'
5&$!&' 8#,' ")&6' #1''?' #,' 5-$!&' *)&,&' +1!)' 5$!:&,' +)$--' ,&+ (&' ' $'('
8' +1!)' $-&+ @&' '#' !-&$,&(' $+' @& '.' 2,&++B2$!:&(6' ")&'' ")&' &$,!)&,6'
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$'') +')$,.&

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< ' '(' @&' "' 81,")&,' &'$!"&(')$"' '# H##(+' !-&$,&(' 8#,' ' @ =*
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@#,'&6' "#' @&' 21"' #"' @#$,('$'?') 2' 8#,' 92#,"$" #"' 8,#%' ")&' V' "&('
D '.(#%6' @?' $'?' 5&,+#'6' 1'-&++' +1!)' 5&,+#"' +)$--' @&' $1")#, +&(' 8#,'
")$"' 51,2#+&' @?' !&'!&' 1'(&,' ")&' $'(+' #8' ")&' #%% ++ #'&,+' #8' HD#EDG'
")&' 1+"#%+' $'(' ")$"6' @&8#,&' .,$'" '.' +1!)' !&'!&6' "' +)$--' @&' 4"3D/ 0D#'
-$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' ,&C1 ,&' +1!)' &!1, "?' @?' #'(' #76' 3 ' E" C'
8#,' ")&' 8$ ")81-' $'(' '!#,,12"' #'(1!"' #8' +1!)' 5&,+#"' $+' ")&?' +)$-- GDOD#3 I /D' /'
(&&%' '&!&++$,?' $'(' ")$"' $8"&,' .,$'" '.' +1!)' !&'!&' "' +)$--' @&' Z2/D" IEDG'
-$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' "#' ,&4#:&' ")&' +$%&6' 8' ")&' 5&,+#"' GE'
"#' *)#%' ")&' +$%&' +)$--')$4&' @&&"' .,$'"&(' +)$--' @&' !#'4 !"&(' #8' $'?' (0 0 EE #^
88&'!&' $.$ '+"' ")&' $*+' ,&-$" '.' "#' ")&' 1+"#%+' #,' 9! +&] 5,#N D/E' 026' 4/2#3'
4 (&('$-*$?+6' ")$"' $--' +1!)' !&'!&+' *) !)' +)$--' @&' "' 8#,!&' $"' ")&' HD#HD' 2#G'
%&' #8' ")&' #%%&'!&%&'"' #8' ")' +' !"' +)$--' !#'" '1&' "' 8#,!&' $+' /D\ I /D' #G'
8' ")&' +$%&')$(' @&&"' $8"&, *$,(+' .,$'"&(' 1'(&,' ")&' 1")#, "?' #8' ")' +' HD#HDE' #
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< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' 8' $'?' H##(+' *) !)')$4&' @2/D" IED'
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H##(+' *) !)')$4&' @&&"' !-&$,&(' "#' @&' &92#,"&(' 8#,' $'?' 3,$*@$!:' #,' GE' # 3'
#1'"?6' +)$--' '#"' @&' (1-?' &92#,"&(' "#' 5$,"+' @&?#'(' ")&' &$+6' #,' +)$-- D&C /3DG!' /'
@&' ,&B-$'(&(' "' $'?' 5$,"' #8' ")&' V' "&(' D '.(#%6' X+1!)' H##(+' '#"' .' /D72#GDG!'
)$4 '.' @&&"' (1-?' ,&B-$'(&(' #,' (+!)$,.&(' $+' +)#,"B+) 22&(' 1'(&,' ")&' /' H2// DG' 3 '
$,&' #8' ")&' 2,#2&,' 88 !&,+6[#,' +)$--' @&' -$'(&(' "' ")&' +-$'(+' 1 ' ID/#ED6'! H
#,' 1 '#,' +)$--' @&' !$,, &(' "#' $'?' #8' ")&' +-$'(+' #8' '& ' Z 3" I3'
' +'#,' 'X'#"')$4 '.' @&&"' (1-?' &'"&,&(6' !-&$,&(6' $'(' #3/6!' . /^
+) 22&(' "#' @&' &92#,"&(' (,&!"-?' "#' +1!)' +-$'(6[")&' +$%&' +)$--' @&' .D 3DG
8#,8&' "&(6' "#.&")&,' * ")' ")&') 2' 8,#%' #,' @?' *) !)' ")&' +$%&')$(' @&&"'
+#' ,&B-$'(&(6' -$'(&(6' #,' !$,, &(6' $'(' $'?' #")&,') 26' <&++&-6' #$"6' #,'
,$8"' *) !)' %$?')$4&' @&&"' 1+&(' "' +#' ,&B-$'('.6' -$'('.6' #,' !$,N
,? '.' +1!)' H##(+' $'(' $'?' 5&,+#"' @?' *)#%' #,' @?' *)#+&' ,(&,+' #,'
&$'+' +1!)' H##(+' +)$--')$4&' @&&"' +#' "$:&"' #,' !-&$,&(6' #,' +#' ,&B-$'(&(6'
-$'(&(6' #,' !$,, &(6' +)$--' 8#,8&' "' $' 1%' &C1$-' "#' ,&@-&' ")&' <$-1&' #8'
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< ' '(' @&' "' 81,")&,' &'$!"&(')$"' $' 3,$*@$!:' #8' ")&' *)#-&' */2ZO2H]' .'
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#'+1%2" #"' #8' 88 !&,+' #8' +' $>&+"?;+' $4?6' #"' @#$,(' +1!)' #8' @ #D' 277 ZDG'
+' $>&+"?;+') 2+' "' $!"1$-' &,4 !&' $+' ")&?' +)$--' +&,4&' '6' '#"' &9N . /' ' .. HD/E'
!&&('.' ")&' T1$'" &+' #8' E '&6' "' $'?' '&' &$,6' 8#,' ")&' V+&' #8' +1!)' #' 3"D') 2F6
88 !&,+6')&<& 'B$8"&,' ,&+2&!" 4&-?' %&'" #'&(' ' X")$"' +' "#' +$?6[

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+1!)' E '&' +)$--' @&' (&- 4&,&(' '"#' ")&')$, .&' #8' ")&' 88 !&,+' #8' ")&'
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,#1.)' "$"&' #,' 8 '+)&(' 8#,' V+&' E,&' #1-(+' 8#,' %$: '.'
5$2&,' E)&&-+' #8' &"$-6' "#'&6' #,' E##(6' 8#,' !1"" '.6' ,#1.) '.'
%##") '.6' 2#-+) '.6' #,' &'.,$4 '.' H-$++' 51,!&--$+6' 5 '!&,+6'
)&&,+6' $'(' 5 2&+' 1+&(' '' @-#* '.' H-$++' 5#""&,+' E)&&-+' $'(
$")&+6' 8#,' 2-$ '6' ,#1'(6' $'(' '. '& "1,' '. ##-+ 1+&(' @?
$((-&,+6' $,'&++B%$:&,+6' $'(' ,(-&B%$:&,+6' K,' $'(-&'
",$ '&,+6' (&' ",$ '&,+6' 5# '' ",$ '&,+6' ,&$+ '.' ,#'+6' !,&*'
,&$+&,+6' E)&&-' ,#'+6' &$'' ,#'+6' 5, !: '.' ,#'+6' #-+"&, '.'
,#'+6' -$%+6' $'(' &$(' D' 4&+
G' ,$%&+' 8#,' %$: '.' E &$, '.' 22$,&-

' '#8' H 3 ' *) !)' %$?' @&' 6 2 + ' "#' @&' +D 6 + ' @?'
5,#!-$%$" #'' #,' ,(&,' '' #1'! -
,%+6' %%1' " #'6' $'(' H1'2#*(&,
+)&+6' 5#'' $'(' 5&$,-
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*) !)' +' $>&+"?' +)$--' >1(.&' !2@-&' #8' @&' '.' !#'4&,"&(' '"#'
#,' %$(&' 1+&81-' '' '!,&$+ '.' ")&' T1$'" "?' #8' - "$,?' #,' 4-'
"#,&+
5,#4 + #'+6' #,' $'?' #," #8' < !"1$-' *) !)' %$?' @&' 1+&(' $+' ##(' @?' $'
'(' 8' $'?' H##(+' +)$--' @&' &92#,"&(6' #,' @&' * $"&,@#,'&' "#' @&' &92#,"&(6' #,&& "1,&6'
8,#%' ")&' V' "&(' D '.(#%6' !#'",$,?' "#' $'?' #8' ")&' 5,#) @ " #'+' #,'
&+", !" #'+' %&'" #'&(' '' +1!)' $@-&' '' ,&+2&!" #8' +1!)' H##(+6' ")&'
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< ' '(' *)&,&$+' '' +' '&!&++$,?' "#' %$:&' &.1-$" #'+' 8#,' ")&' (' @
#$+" '.' ,$(&' #8' ")&' V' "&(' D '.(#%' $'(' #8' ")&' ' ' ' $'('
")$'' ")&' 88 !&,+' #8' ")&' 1+"#%+' +)#1-(')$4&' #. ' L$'!&' #8' $--') 2+'
!$,,? '.' $'?' H##(+' #$+"* +&' 8,#%' #'&' 5$," #8' ")&' V' "&(' D '.N)
(#%' #,' #8' ")&' ' ' ' "#' $'#")&,' #8' ")&' +$%&6' $'(' #8' $--' 77' /2GD' O6'
H##(+' +#' !$,, &(6' '' #,(&,' ")$'' +1!)' ,$(&' %$?' @&' !#'8 '&(' "#' D2' ./ O' #D'
(') 2+6' $'(' ")$'' $--' 31" &+' -&4 &(' #$+"* +&' %$?' @&' (1-?' +2/3' .'3"D'
!#--&!"&(6' $'(' ")$'' ")&' $*+' 8#,' ,&.1-$" '.' ")&' %2#,"$" #'' $'(' # 3DG' ? #4^
92#,"$" #'' #8' H##(+' 8,#%' $'(' "#' 5$,"+' @&?#'(' ")&' &$+' %$?' '#'' @&' G O' 3 '
&4$(&(2# 3"D/' 3 '
OD' GDD O DG

(' @

) (

(2E3Z ED!ʿ 2#Gʿ# ʿ +2/3ʿ 3 ʿ ODʿ GDD O DGʿ OD6 #Gʿ 3"Dʿ D2E

&4$(&(ʿ @&ʿ "ʿ")&,&8#,&ʿ&'$!"&(6ʿ)$"ʿ$--ʿ ,$(&ʿ@?ʿ &$ʿ8,#%ʿ$'?ʿ#'&ʿ 5$,"ʿ#8ʿ")&ʿV' "&(ʿD '.(#%ʿ "#ʿ$'?ʿ#")&,ʿ5$,"ʿ")&,&#86ʿ#,ʿ8,#%ʿ #'&ʿ 5$,"ʿ#8ʿ")&ʿ ʿ ʿ ʿ "#ʿ $'#")&,ʿ")&,&#8ʿ+)$--ʿ@&ʿ(&&%&(ʿ"#ʿ@&ʿ$ʿ #$+" '.ʿ ,$(&6ʿ $'(ʿ $--ʿ)2+ʿ *)-&ʿ &%2-#?&(ʿ ")&,& 'ʿ +)$--ʿ @&ʿ (&&%&(ʿ "jʿ @&ʿ #$+" '.ʿ)2+ʿ $'(ʿ ")$"ʿ '#ʿ 5$,"ʿ #8ʿ ")&ʿ V' "&(ʿ D '.(#%6ʿ)#*&4&,ʿ + "1$"&(ʿ * ")ʿ ,&.$,(ʿ "#ʿ $'?ʿ#")&,ʿ5$,"ʿ ")&,&#86ʿ +)$--ʿ @&ʿ (&&%&(ʿ 'ʿ $*6ʿ * ")ʿ ,&8&,&'!&ʿ "#ʿ &$!)ʿ #")&,6ʿ "#ʿ @&ʿ 5$,"+ʿ @&?#'(ʿ ")&ʿ &$+ʿ 'ʿ $'?ʿ $""&,ʿ,&-$" '.ʿ"#ʿ")&ʿ ,$(&ʿ#,ʿ $4 .$"#'ʿ #,ʿ &4&'1&ʿ#8ʿ") +ʿ &$-%

/GEʿ .ʿ /D2E I /6ʿ 3 ʿ /D4 I 723Dʿ Z "23ʿ E"27ʿ ODʿ GDD O DG ʿ 3/2G #4ʿ O6ʿ D2ʿ I#GD 5ʿ 3" Eʿ H3

< ʿ '(ʿ*)&,&$+ʿ+#%&ʿ5$,"+ʿ#8ʿ")&ʿ #$+"ʿ#8ʿ")&ʿV' "&(ʿD '.(#%ʿ %$?ʿ@&ʿ+#+ "1$"&(ʿ * ")ʿ ,&.$,(ʿ "#ʿ #")&,ʿ '& .)@#1, '.ʿ5$,"+ʿ")&,&#8ʿ ")$"ʿ 3#1@"+ʿ %$?ʿ$, +&ʿ 'ʿ Y#%&ʿ $+&+ʿ*)&")&,ʿ")&ʿ5$++$.&ʿ@&"*&&'ʿ ")&%ʿ@?ʿ E$"&,ʿ+)$--ʿ@&ʿ(&&%&(ʿ"#ʿ @&ʿ $ʿ5$++$.&ʿ @?ʿ &$ʿ *") 'ʿ ")&ʿ &$' '.ʿ#8ʿ") +ʿ !"ʿ $'(ʿ")$"ʿ "ʿ#")&,ʿ $+&+6ʿ$-")#1.)ʿ+1!)ʿ5$++$.&ʿ @&ʿ@?ʿ &$6ʿ "ʿ%$?ʿ@&ʿ1''&!&++$,?6ʿ8#,ʿ")&ʿ51,2#+&+ʿ#8ʿ") +ʿ !"ʿ#,ʿ#8ʿ$'?ʿ !"ʿ,&-$" '.ʿ"#ʿ")&ʿ 1+"#%+6ʿ "#ʿ+1@>&!"ʿ)2+ʿ2$++ '.ʿ@&"*&&'ʿ +1!)ʿ 5-$!&+ʿ "#ʿ ")&ʿ &+",$ '"+ʿ #8ʿ #$+"ʿ &.1-$" #'+ʿ @&ʿ >"ʿ")&,&8#,&ʿ&'N $!"&(6ʿ)$"ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$(ʿ #%% ++ #'&,+ʿ #8ʿ +ʿ $>&+"?;+ʿ ,&$+1,?ʿ"#ʿ(&"&,% '&ʿ$'(ʿ(,&!"ʿ '*)$"ʿ $+&+ʿ ")&ʿ ,$(&ʿ @?ʿ E$"&,ʿ8,#%ʿ $'?ʿ 5-$!&ʿ #'ʿ ")&ʿ #$+"ʿ #8ʿ ")&ʿ V' "&(ʿD '.(#%ʿ "#ʿ $'#")&,ʿ#8ʿ")&ʿ +$%&ʿ +)$--ʿ ʿ +)$--ʿ '#"ʿ @&ʿ (&&%&(ʿ $ʿ ,$(&ʿ @?ʿ &$ʿ *") 'ʿ ")&ʿ &$' '.ʿ #8ʿ ") +ʿ !"ʿ #,ʿ #8ʿ $""?ʿ !"ʿ ,&-$" '.ʿ "#ʿ ")&ʿ 1+"#%+

(2E3 #4ʿ " Cʿ H #^ . #DGʿ 3 ʿ H 2E3 #4ʿ 624D

&4 - ʿ '(ʿ@&ʿ "ʿ81,")&,ʿ&'$!"&(6ʿ)$"ʿ '#ʿH##(+ʿ+)$--ʿ@&ʿ!$,,&(ʿ 'ʿ$'?ʿ #$+"'.ʿ)2ʿ&9!&2"ʿ+1!)ʿ$+ʿ+)$--ʿ@&ʿ-$(&'ʿ"#ʿ@&ʿ+#ʿ!$,,&(ʿ$"ʿ +#%&ʿ5#,"ʿ#,ʿ5-$!&ʿ '")&ʿV' "&(ʿD '.(#%6ʿ#,ʿ$"ʿ+#%&ʿ5#,"ʿ#,ʿ5-$!&ʿ 'ʿ")&ʿ ʿ ʿ ʿ,&+2&!"4&-?ʿ$'(ʿ")$"ʿ '#ʿH##(+ʿ+)$--ʿ@&ʿ-$(&'ʿ #'ʿ@#$,(ʿ $'?ʿ)2ʿ"#ʿ@&ʿ!$,,&(ʿ #$+"*+&ʿ1'"-ʿ$--ʿH##(+ʿ@,#1.)"ʿ 'ʿ+1!)ʿ)2ʿ8,#%ʿ5$,"+ʿ@&?#'(ʿ")&ʿ &$+ʿ+)$--ʿ)$4&ʿ@&&'ʿ1':(&'ʿ ʿ $'(ʿ")$"ʿ8ʿ$'?ʿH##(+ʿ+)$--ʿ@&ʿ"$:&'ʿ '"#ʿ#,ʿ21"ʿ#1"ʿ#8ʿ$'?ʿ #$+" '.ʿ)2ʿ$"ʿ &$ʿ#,ʿ#4&,ʿ")&ʿ &$6ʿ#,ʿ8ʿ$'?ʿ #$+" '.ʿ)2ʿ+)$--ʿ"#1!)ʿ$"ʿ $'?ʿ5-$!&ʿ#4&,ʿ")&ʿ &$6ʿ#,ʿ(&4ʿ$"&ʿ8,#%ʿ)&,ʿ<#?$.&6ʿ1'-&++ʿ8#,!&(ʿ@?ʿ 1'$4#($@-&ʿ ,!1%+"$'!&+6ʿ#,ʿ8ʿ")&ʿ $+"&,ʿ#8ʿ$'?ʿ #$+" '.ʿ)2ʿ *)!)ʿ+)$--ʿ)$4&ʿ"#1!)&(ʿ$"ʿ$'?ʿ5-$!&ʿ#4&,ʿ")&ʿ &$ʿ+)$--ʿ '#"ʿ (&!-$,&ʿ ")&ʿ+$%&ʿ 'ʿ E," '.ʿ1'(&,ʿ) +ʿ $'(ʿ "#ʿ ")&ʿ #--&!"#,ʿ#,ʿ #'",#--&,ʿ$"ʿ ")&ʿ5#,"ʿ 'ʿ")&ʿV' "&(ʿD '.(#%ʿ#,ʿ 'ʿ")&ʿ ʿ ʿ ʿ*)&,&ʿ+1!)ʿ)2ʿ+)$--ʿ$,,4&ʿ$*$(ʿ+"$,"ʿ#8ʿ+1!)ʿ)2ʿ+)$--ʿ8#,8&"ʿ ")&ʿ 1%ʿ#8ʿ *#ʿ)1'(,&(ʿ5#1'(+

+D#2736ʿ #ʿ *DF 23 #

< ʿ '(ʿ@&ʿ "ʿ81,")&,ʿ&'$!"&(6ʿ)$"ʿ '#ʿH##(+ʿ+)$--ʿ@&ʿ-$(&'ʿ #'ʿ@#$,(ʿ$'?ʿ)2ʿ "ʿ$'?ʿ5#,"ʿ#,ʿ5-$!&ʿ 'ʿ")&ʿV' "&(ʿD '.(#%ʿ#,ʿ 'ʿ ")&ʿ ʿ ʿ ʿ"#ʿ@&ʿ!$,,&(ʿ #$+"*+&6ʿ#,ʿ)$4&ʿ@&&'ʿ@,#1.)"ʿ #$+"*+&ʿ+)$--ʿ@&ʿ1'-$(&'ʿ+1!)ʿ5@,"#ʿ#,ʿ5-$!&ʿ8,#%ʿ$'?ʿ+1!)ʿ)26ʿ1'"-ʿ(1&ʿ #"!&ʿ 'E,"'.6ʿ+.'&(ʿ@?ʿ")&ʿ $+"&,6ʿ+)$--ʿ)$4&ʿ@&&'ʿ.4&'ʿ"#ʿ")&ʿ #--&!"#,ʿ#,ʿ#")&,ʿ #8ʿ@?ʿ")&ʿ $+"&,6ʿ*'&,6ʿ E)$8ʿ'.&6ʿ#,ʿ.&'"ʿ#8ʿ+1!)ʿ)26ʿ#8ʿ")&ʿ'"&'"#'ʿ"#ʿ-$(&ʿH##(+ʿ#'ʿ @#$,(ʿ")&ʿ+$%&ʿ"#ʿ@&ʿ+#ʿ!$,,&(6ʿ#,ʿ8ʿ")&ʿ,,4$-ʿ#8ʿ+1!)ʿ)2ʿ*ʿ")ʿ H##(+ʿ+#ʿ@,#1.)"6ʿ$+ʿ")&ʿ$+ʿ%$?ʿ@&6ʿ'#,ʿ1'"-ʿ2,#2&,ʿ3#!1%&'"+ʿ +)$--ʿ)$4&ʿ@&&'ʿ.,$'"&(ʿ$+ʿ'B$8"&,ʿ(,&!"&(ʿ8#,ʿ")&ʿ-$('.ʿ#,ʿ8#,ʿ ")&ʿ1'-$('.ʿ#8ʿ+1!)ʿH##(+ʿ$'(ʿ+1!)ʿH##(+ʿ+)$--ʿ'#"ʿ@&ʿ-$(&'ʿ#,ʿ 1'-$(&'ʿ&9!&2"ʿ$"ʿ+1!)ʿ %&+ʿ$'(ʿ5-$!&+6ʿ$'(ʿ'ʿ+1!)ʿ%$''&,6ʿ$'(ʿ$'(ʿ @?ʿ+1!)ʿ5&,+#'+6ʿ$'(ʿ1'(&,ʿ")&ʿ$,&ʿ#8ʿ+1!)ʿ 88!&,+6ʿ$+ʿ+$(ʿ$,&ʿ)&,&ʿ'B

)&,& 'B$8"&,ʿ (,&!"&(ʿ $' ('$--ʿ H##(+ʿ -$(&'ʿ"#ʿ @&ʿ +#ʿ !$,, &(6ʿ #,ʿ @,#1.)"ʿ , +ʿ
"#ʿ @&ʿ +#ʿ 1'-$(&'6ʿ !#'",$,?ʿ)&,&"#6ʿ +)$--ʿ @&ʿ 8#,8& "&(6ʿ b

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(6ʿ)$"ʿ 'ʿ +1!)ʿ #" !&ʿ +)$--ʿ @&ʿ +2/3 HI72/Eʿ
+"$"&(ʿ ")&ʿ $%&ʿ $'(ʿ #''$.&ʿ #8ʿ ")&ʿ) 26ʿ $'(ʿ ")&ʿ $%&ʿ #8A")&ʿ 5#,"ʿ 'ʿ) 3 HD Nʿ
"#6ʿ *) !)ʿ +)&ʿ @&-#'.+6ʿ $'(ʿ ")&ʿ $%&ʿ #8ʿ ")&ʿ $+"&,6ʿ $'(ʿ ")&ʿ $%&ʿ #8ʿ
")&ʿ 5#,"ʿ "#ʿ *) !)ʿ +)&ʿ +ʿ @#1'(ʿ #,ʿ 8,#%ʿ *) !)ʿ +)&ʿ)$+ʿ $,, 4&(6ʿ $'(ʿ
")&ʿ $%&ʿ #,ʿ 3&+!, 2" #'ʿ #8ʿ ")&ʿ E)$,8ʿ #,ʿ 5-$!&ʿ $"ʿ *) !)ʿ)&,ʿ $('.ʿ
+ʿ "#ʿ @&ʿ "$:&'ʿ 'ʿ #,ʿ (+!)$,.&(6ʿ $+ʿ ")&ʿ $+&ʿ %$?ʿ @&ʿ ʿ $'(ʿ +1!)ʿ #" !&ʿ
+)$--ʿ @&ʿ +.'&(ʿ @?ʿ ")&ʿ $+"&,6ʿ *'&,6ʿ E7)$,8'.&,6ʿ #,ʿ .&'"ʿ #8ʿ +1!)ʿ
) 26ʿ $'(ʿ +)$--ʿ @&ʿ &'"&,&(ʿ 'ʿ $ʿ ##:ʿ "#ʿ @&ʿ :&2"ʿ @?ʿ ")&ʿ #--&!"#,6ʿ 8#,ʿ
")&ʿ '8#,%$" #'ʿ #8ʿ $--ʿ 5$,"&+ʿ '"&,&+"&(ʿ ʿ $'(ʿ &4&,?ʿ +1!)ʿ #" !&ʿ 8#,ʿ Z 3" #ʿ ʿ
")&ʿ 1'-$('.ʿ #8ʿ $'?ʿ) 2ʿ #,ʿ <&++&-ʿ +)$--ʿ @&ʿ (&- 4&,&(ʿ * ") 'ʿ *&'"?Bʿ > I/Eʿ .ʿ
8#1,ʿ #1,+ʿ $8"&,ʿ ")&ʿ ,, 4$-ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-6ʿ 1'(&,ʿ $ʿ 5&'$-"?ʿ // F27ʿ . /ʿ
#8ʿ *&'"?ʿ 5#1'(+6ʿ "#ʿ @&ʿ 2$ (ʿ @?ʿ ")&ʿ $+"&,ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ I#72G #4N
$'(ʿ 'ʿ &4&,?ʿ +1!)ʿ #" !&ʿ 8#,ʿ ")&ʿ -$('.ʿ #8ʿ $'?ʿ) 2ʿ #,ʿ <&++&-ʿ +)$--ʿ . /ʿ 72G #4!ʿ
@&ʿ +"$"&(ʿ ")&ʿ -$+"ʿ <#?$.&ʿ #'ʿ *) !)ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ +)$--ʿ)$4&ʿ 3 ʿ E323Dʿ 72E3ʿ
$,, 4&(ʿ $"ʿ +1!)ʿ 5#,"ʿ $'(ʿ 8ʿ +1!)ʿ <#?$.&ʿ +)$--ʿ)$4&ʿ @&&'ʿ 8,#%ʿ 5$,"+ʿ 624Dʿ 2#G
@&?#'(ʿ ")&ʿ &$+ʿ ")&,&ʿ +)$--ʿ @&ʿ 2,#(1!&(ʿ * ")ʿ +1!)ʿ #" !&ʿ $ʿ &," 8 !$"&ʿ (7D2/2#HD
8,#%ʿ ")&ʿ 2,#2&,ʿ 88 !&,ʿ #8ʿ ")&ʿ 3 +!)$,.&ʿ #8ʿ $--ʿ H##(+6ʿ 8ʿ $'?6ʿ @,#1.)"ʿ
'ʿ +1!)ʿ) 26ʿ $'(ʿ #8ʿ ")&ʿ (1&ʿ -&$,$'!&ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ '*$,(+ʿ
#8ʿ +1!)ʿ <#?$.&

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(6ʿ)$"ʿ 12#'ʿ ")&ʿ ,, 4$-ʿ #8ʿ $'?ʿ A/ 0ʿ 2#Gʿ 3 ʿ
#$+" '.ʿ) 2ʿ $"ʿ $'?ʿ 5#,"ʿ 'ʿ (ʿ 8,#%ʿ ʿ #,ʿ $"ʿ $'?ʿ /D72#Gʿ Z 3"ʿ
5#,"ʿ 'ʿ ʿ 8,#%ʿ ʿ (ʿ ")&ʿ $+"&,ʿ #8ʿ +1!)ʿ) 2ʿ +)$--ʿ HD/32 #
*") 'ʿ *&'"?B8#1,ʿ #1,+ʿ $8"&,ʿ +1!)ʿ ,, 4$-ʿ $""&'(ʿ $'(ʿ (&- 4&,ʿ +1!)ʿ GE
#" !&6ʿ + .'&(ʿ @?ʿ) %6ʿ "#ʿ ")&ʿ #--&!"#,ʿ #,ʿ #'",#--&,ʿ $'(ʿ 8ʿ +1!)ʿ
) 2ʿ +)$--ʿ)$4&ʿ #'ʿ @#$,(ʿ $'?ʿ H##(+ʿ +1@>&!"ʿ #'ʿ ,, 4$-ʿ "#ʿ $'?ʿ 31"?ʿ
#8ʿ 9! +&6ʿ #,ʿ $'?ʿ H##(+ʿ *) !)ʿ)$(ʿ @&&'ʿ %2#,"&(ʿ 8,#%ʿ 5$,"+ʿ @&?#'(ʿ
")&ʿ &$+6ʿ ")&ʿ 5$," !1-$,+ʿ #8ʿ +1!)ʿ H##(+6ʿ * ")ʿ ")&ʿ $,:+ʿ $'(ʿ 1%@&,+ʿ
#8ʿ ")&ʿ 5$!:$.&+ʿ !#'"$ '.ʿ ")&ʿ +$%&6ʿ +)$--ʿ @&ʿ +&"ʿ 8#,")ʿ 'ʿ +1!)ʿ
#" !&ʿ $'(ʿ 8ʿ ")&,&ʿ +)$--ʿ @&ʿ '#ʿ +1!)ʿ H##(+ʿ #'ʿ @#$,(6ʿ ")&'ʿ "ʿ +)$--ʿ
@&ʿ (&!-$,&(ʿ 'ʿ +1!)ʿ #" !&ʿ ")$"ʿ '#ʿ +1!)ʿ H##(+ʿ $,&ʿ #'ʿ @#$,(ʿ $'(ʿ
")&ʿ $+"&,ʿ +)$--ʿ $-+#ʿ $'+*&,ʿ $'?ʿ T1&+" #'+ʿ ,&-$"'.ʿ "#ʿ ")&ʿ <#?$.&ʿ
$+ʿ +)$--ʿ @&ʿ (&%$'(&(ʿ #8ʿ) %6ʿ @?ʿ ")&ʿ #--&!"#,ʿ #,ʿ #'",#--&,ʿ $'(ʿ
&4&,?ʿ $+"&,ʿ *)#ʿ +)$--ʿ 8$ -ʿ 'ʿ (1&ʿ %&ʿ "#ʿ (&- 4&,ʿ +1!)ʿ #" !&6ʿ $'(ʿ
",1-?ʿ "#ʿ $'+*&,ʿ +1!)ʿ T1&+" #'+6ʿ +)$--ʿ 8#,8&ʿ ")&ʿ 1%ʿ #8ʿ '&ʿ)1'N
(,&(ʿ 5#1'(+

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ *)&'ʿ (1&ʿ #" !&ʿ +)$--ʿ)$4&ʿ) 3 HDʿ
@&&'ʿ.4&'ʿ "#ʿ ")&ʿ #--&!"#,ʿ #,ʿ #'",#--&,ʿ $"ʿ ")&ʿ 5#,"ʿ #8ʿ -$('.ʿ #8ʿ ")&ʿ 4 FD#ʿ .ʿ
'"&'" #'ʿ "#ʿ -$(&ʿ H##(+ʿ #'ʿ @#$,(ʿ $'?ʿ #$+" '.ʿ) 26ʿ +1!)ʿ ʿ ʿ ʿ
#,ʿ #'",#--&,ʿ +)$7 .,$'"ʿ $.&'&,$-ʿ 188&,$'!&ʿ 8#,ʿ ")&ʿ ʿ ʿ
H##(+ʿ X* ")#1"ʿ +2&! 8?'.ʿ ")&ʿ +$%&[ʿ #'ʿ @#$,(ʿ +1!)ʿ ʿ $"ʿ ")&ʿ F ʿ
E)$,8ʿ #,ʿ 5-$!&ʿ *) !)ʿ +)$--ʿ @&ʿ &92,&++&(ʿ 'ʿ +1!)ʿ 188&,$'!&ʿ ʿ 7DH3 /ʿ 026ʿ
+1!)ʿ 188&,$'!&ʿ +)$--ʿ @&ʿ $ʿ +188!&'"ʿ 1")#,"?ʿ 8#,ʿ ")&ʿ -$('.ʿ #8ʿ $'?ʿ 4/2#3ʿ 2ʿ
#,"ʿ #8ʿ H##(+6ʿ &9!&2"ʿ +1!)6ʿ 8ʿ $'?6ʿ $+ʿ +)$--ʿ @&ʿ 8 ʿ 8 ʿ
")&,&'ʿ] 5,#4 (&(ʿ $-*$?+6ʿ ")$"ʿ @&8#,&ʿ $'?ʿ 188&,$'!&ʿ @&ʿ .,$'"&(ʿ 8#,ʿ W$'!&ʿ
$'?ʿ H##(+ʿ 2,#) @ "&(ʿ "#ʿ @&ʿ &92#,"&(ʿ #,ʿ +1@>&!"ʿ "#ʿ $'?ʿ 92#,"ʿ 31"?ʿ
#")&,ʿ ")$'ʿ $'?ʿ ʿ *ʿ 31"?6ʿ ")&ʿ $+"&,ʿ #,ʿ *'&,ʿ #8ʿ $'?ʿ +1!)ʿ
) 26ʿ #,ʿ ")&ʿ) 22&,ʿ #8ʿ +1!)ʿ H##(+6ʿ +)$--ʿ .4&ʿ #'(6ʿ *")ʿ '&ʿ
+188 ! &'"ʿ 1,&"?6ʿ 'ʿ ,&@-&ʿ ")&ʿ <$-1&ʿ #8ʿ ")&ʿ H##(+6ʿ ")$"ʿ ")&ʿ +$%&ʿ
+)$--ʿ @&ʿ -$'(&(ʿ $"ʿ ")&ʿ 5#,"ʿ 8#,ʿ *) !)ʿ +1!)ʿ 188&,$'!&ʿ +ʿ ,&C1 ,&(6ʿ #,
+)$--

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")&ˁ V' "&(ˁ D '.(#%ˁ $'(ˁ #8ˁ ")&ˁ ˁ ˁ ˁ 'ˁ (ˁ 1,,&'!?6ˁ $'(ˁ @D 4"3E!ˁ
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)&,&ˁ +1!)ˁ 31" &+6ˁ #1'" &+6ˁ $'(ˁ 3,$@$!:+ˁ $,&ˁ %2#+&(ˁ $'(ˁ $--#*&(ˁ $'$.&7;ˁ
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+)$--ˁ @&ˁ (&&%&(ˁ "#ˁ $22-?ˁ 'ˁ ")&ˁ +$%&ˁ 5,#2#," #'ˁ "#ˁ $'?ˁ .,&$"&,ˁ #,ˁ
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")&ˁ V' "&(ˁ D '.(#%ˁ +)#1-(ˁ $"ˁ $--ˁ %&+ˁ @&ˁ &9$&"-?ˁ +% -$,ˁ "#ˁ ")&ˁ A /D 4#
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," !-&' *)$"&4&,6' #,' +)$-' @?' $'?' 8$-+&' "$"&%&'" 2,#!1,&' $'?' + 6
E, " ' .' #,' 3#!1%&'" "#' @&' %$(&' 8#,' $'?' #8' +1!)' 51,2#+&+6' &4&,?'
5&,+#'' +#' #88&'(' .' +)$-' 8#,' &4&,?' +1!)' 88&'!&' 8#,8&' ")&' 1%' #8'
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' '(' @&' " 81,")&,' &'$!"&(6')$"' *)&'&4&,' $'?' 5&,+#'' I3" / 36' #8
+)$-' %$:&' $'?' 22- !$" #'' "#' $'?' 88 !&,' #8' ")&' 1+"#%+' "#' ",$'+$!" 2#' 4D#3' 026'
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1+"#,$+' X&9!&2" 3&!-$,$" #'+' "#' ")&' <$-1&' #8' H##(+[' @&' 1'",1&' '' /2 #' 7 2O7D'
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#,8&"1,&' #8' $'?') 26' <&++&-6' #,' #$" +)$-' @&' (&&%&(' "#' '!-1(&' GIGD' 2H]7D!'
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1'(&,B4$-1&(6' @?' 4 ,"1&' #8' $'?' !" #8' 5$,- $%&'" ,&-$" ' .' "#' ")&' GE " CE!'
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1+"#%+' "#' #,(&,' ")&' +$%&' "#' @&' ,&+"#,&(' '' +1!)' $''&,' $'(' #'' 23E' 3 ' OD'
+1!)' &,%+' $'(' #'("#'+' $+' ")&?' +)$-' ") ' :' 8 " "#' (,&!" ' $'(' 8' # 3"D' (0^
")&' 5,#2, &"#,' #8' ")&' +$%&' +)$-' $!!&2" ")&' &,%+' $'(' #'("#'+' O EE #D/E'
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) 2' #,' 1'-$(&'' ")&,&8,#%6' $'(' +1!)' H##(+' +)$-' @&' +%$-' '' E #D/E!' #'
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+1!)' H##(+')$(' @&&'' -$(&'' #,' 1'-$(&'' !#'",$,?' "#' ")&' '"&'" #'' #8' 2#G' B2E3D/
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.ʽ3"Dʹ (2E3ʹ
.ʽ3"Dʹ # 3DGʹ
? #4G O!ʹ /ʹ
.ʽ3"Dʹ E72#GEʹ
.ʽ I D/#ED6!ʹ
,D/ED6! 7GD/^
#D6!ʹ 2/]!ʹ /ʹ
B 2#!ʹ Z 3"ʹ
HD/32 #ʹ GEʹ
#ʹ O 2/G!ʹ
. /.D 3DG

<&++&-ʽ & ")&,ʽ @&-#' . ' .ʽ 'ʽ ")&ʽ *)#-&ʹ #,ʽ 'ʽ 2$,"ʹ "#ʹ +ʽ $>&+"?;+ʽ 1@>&!"+6ʹ #,ʽ)$4 ' .ʽ $-8ʹ ")&ʹ 5&,+#'+ʽ #'ʽ @#$,(ʽ 1@>&!"+ʽ #8ʹ +ʽ $>&+"?6ʹ #,ʽ $'?ʹ #,& . 'ʽ <&++&-ʽ '#"ʹ @& ' .ʽ +C1$,&B, . .&(6ʹ #,ʽ $'?,ʽ #,& . 'ʽ #$"6ʹ 'ʽ *) !)ʽ ")&,&ʹ +)$--ʽ @&ʹ '&ʹ #,ʽ %#,&ʹ 1@>&!"+ʽ #8ʹ +ʽ $>&+"?6ʹ +)$--ʽ @&ʹ 8#1'(ʽ #,ʽ (+!#4&,&(ʽ "#ʹ)$4&ʹ @&&'ʽ * ") 'ʽ #1,ʽ &$.1&+ʽ #8ʹ ")$"ʹ 5$,"ʹ #8ʹ ")&ʹ V' "&(ʽ D ' .(#%ʹ *) !)ʽ +ʽ @&"*&&'ʽ ")&ʹ #,")ʽ #,&-$'(ʽ #"ʽ ")&ʹ #$+"ʹ #8ʹ O ʽ $'(ʽ (ʽ) ʽ #'ʽ ")&ʹ #$+"ʹ ʽ 8ʽ #,ʽ * ") 'ʽ .)"ʹ &$.1&+ʽ #8ʹ $'? #")&,ʽ 5$,"ʹ #8ʹ ")&ʹ #$+"ʹ #8ʹ ")&ʹ V' "&(ʽ D ' .(#%ʽ #,ʽ 8ʹ $'?ʹ #,& . 'ʽ <&++&-ʽ #,ʽ #$"ʹ +)$--ʽ @&ʹ 8#1'(ʽ #,ʽ (+!#4&,&(ʽ "#ʹ)$4&ʹ @&&'ʽ * ") 'ʽ '&ʹ &$.1&ʹ #8ʹ ")&ʹ #$+"ʹ #8ʹ ")&ʹ V' "&(ʽ D ' .(#%ʽ #,ʽ 8ʹ $'? <&++&-ʽ #,ʽ #$"ʹ +)$--ʽ @&ʹ 8#1'(ʽ #,ʽ (+!#4&,&(ʽ "#ʹ)$4&ʹ @&&'ʽ * ") 'ʽ '&ʹ &$.1&ʹ #8ʹ ")&ʹ +-$'(+ʽ #8ʹ ʽ & ʽ ʽ +ʽ #,ʽ ʽ ,&+2&!" 4&-?6ʹ #,ʽ * ") 'ʽ $'?ʹ $?6ʹ $,@#1,6ʹ 4&,6ʹ #,ʽ ,&&:ʽ #8ʹ #,ʽ @&-#' . ' .ʽ "#ʹ $'?ʹ #'&ʹ #8ʹ ")&ʹ +$ (ʽ +-$'(+ʽ $'?ʹ +1!)ʽ <&++&-ʽ #,ʽ #$"ʹ +#ʹ 8#1'(ʽ #,ʽ (+!#4&,&(6ʹ)$4 ' .ʽ #'ʽ @#$,(ʽ #,ʽ 'ʽ $'?ʹ $''&,ʽ $""$!)&(ʽ ")&,&"#6ʹ #,ʽ)$4 ' .ʽ)$(ʽ #'ʽ @#$,(ʽ #,ʽ 'ʽ $'?ʹ $''&,ʽ $""$!)&(ʽ ")&,&"#6ʹ #,ʽ !#'4&? ' .ʽ #,ʽ)$4 ' .ʽ !#'4&?&(ʽ 'ʽ $'?ʹ $''&,6ʹ $'?ʹ 2 , "+ʽ '#"ʹ @& ' .ʽ 'ʽ $ʹ $+:ʽ #,ʽ 5$!:$.&ʹ !#'"$ ' ' .ʽ #,"?ʹ H$--#'+ʽ $"ʹ ")&ʹ -&$+"6ʹ #,ʽ $'?ʹ &$ʹ &9!&&(' .ʽ 9ʹ 5#1'(+ʽ E& .)"ʹ 'ʽ")&ʹ *)#-&6ʹ #,ʽ $'?ʹ #@$!!#ʹ #,ʽ '188ʹ '#"ʹ @& ' .ʽ 'ʽ $ʹ $+:ʽ #,ʽ 5$!:$.&ʹ !#'"$ ' ' .ʽ #1,ʽ)1'(,&(ʽ $'(ʽ 8 8"?ʹ 5#1'(+ʽ E& .)"ʹ $"ʹ -&$+"6ʹ #,ʽ @& ' .ʽ 2$!:&(ʽ +&2$,$"&-?ʹ 'ʽ $'?ʹ $''&,ʽ * ") 'ʽ $'?ʹ $+:ʽ #,ʽ 5$!:$.&6ʹ #,ʽ $'?ʹ #,($.&ʹ #,ʽ #")&,ʽ ," !-&+ʽ $($2"&(ʽ $'(ʽ 2,&2$,&(ʽ 8#,ʽ +- ' . ' .ʽ #,ʽ + ' : ' .ʽ +%$--ʽ $+:+6ʹ #,ʽ $'?ʹ $+:+ʽ #,ʽ #")&,ʽ <&++&-+ʽ *)$"+#&4&,ʽ #8ʹ -&++ʽ L&ʹ #,ʽ #'"&'"ʹ ")$'ʽ #,"?ʹ H$--#'+6ʹ #8ʹ ")&ʹ 3&N +!, 2" #'ʽ 1+&(ʽ 8#,ʽ ")&ʹ +%1. .-ʽ ' .ʽ #8ʹ 2 , "+6ʹ ")&'ʽ $'(ʽ 'ʽ &4&,?ʹ +1!)ʽ $+&ʹ ")&ʹ +$ (ʽ 2 , "+6ʹ &$6ʹ #@$!!#6ʹ #,ʽ '1886ʹ "#.&")&,ʽ * ")ʽ ")&ʹ $+:+ʽ #,ʽ 5$!:$.&+ʽ !#'"$ ' ' .ʽ ")&ʹ +$%&6ʹ $'(ʽ ")&ʹ #,($.&ʹ #,ʽ #")&,ʽ ," !-&+6ʹ $+:+6ʹ $'(ʽ #")&,ʽ <&++&-+ʽ #8ʹ ")&ʹ 3&+!, 2" #'ʽ $8#,&+$ (6ʹ $'(ʽ $-+#ʹ ")&ʹ <&++&-ʽ #,ʽ #$"6ʹ +)$--ʽ @&ʹ 8#,8& "&(

#6ʹ DEED7ʹ
/ʹ 23ʹ
2// F #4ʹ
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# 3DGʹ ? #4^
G O!ʹ "2F #4ʹ
C/ " O 3DGʹ
GEʹ #ʹ
O 2/Gʹ /ʹ
2332H"DGʹ
3"D/D3 !ʹ . /^
.D 3DG!ʹ I #7DEEʹ
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ʽ '(ʽ @&ʹ "81,")&,ʽ &'$!"&(ʽ)$"ʹ 8ʹ $'? <&++&-ʽ #,ʽ #$"ʹ *)$"N &4&,ʽ +)$--ʽ $,, 4&6ʹ #,ʽ +)$--ʽ @&ʹ 8#1'(ʽ #,ʽ (+!#4&,&(ʽ "#ʹ)$4&ʹ @&&'ʽ * ") 'ʽ $'? 5#,"6ʹ $,@#1,6ʹ 4&,6ʹ #,ʽ ,&&:ʽ #8ʹ ")&ʹ V' "&(ʽ D ' .(#%6ʹ '#"ʹ @& ' .ʽ (, 4&'ʽ ")&,& '"#ʹ @?ʹ ",&++ʽ #8ʹ E&$")&,ʽ #,ʽ #")&,ʽ 1'$4#($@-&ʹ !! (&'"6ʹ)$4 ' .ʽ #'ʽ @#$,(ʽ #,ʽ 'ʽ $'?ʹ $''&,ʽ $""$!)&(ʽ ")&,&"#6ʹ #,ʽ)$4 ' .ʽ)$(ʽ #'ʽ @#$,(ʽ #,ʽ 'ʽ $'?ʹ $''&,ʽ $""$!)&(ʽ ")&,&"#6ʹ #,ʽ !#'4&?N ' .ʽ #,ʽ)$4 ' .ʽ !#'4&?&(ʽ 'ʽ $'?ʹ $''&,6ʹ * ") 'ʽ $'? +1!)ʽ 5#,"6ʹ $,N @#1,6ʹ 4&,6ʹ #,ʽ ,&&:6ʹ $'?ʹ 2 , "+ʽ '#"ʹ @& ' .ʽ 'ʽ $ʹ $+:ʽ #,ʽ 5$!:$.&ʹ !#'"$ ' ' .ʽ #,"?ʹ H$--#'+ʽ $"ʹ ")&ʹ -&$+"6ʹ #,ʽ $'?ʹ #@$!!#ʹ #,ʽ '188ʹ '#"ʹ @& ' .ʽ 'ʽ $ʹ $+:ʽ #,ʽ 5$!:$.&ʹ !#'"$ ' ' .ʽ #1,ʽ)1'(,&(ʽ $'(ʽ 8 8"?ʹ 5#1'(+ʽ E& .)"ʹ $"ʹ -&$+"6ʹ #,ʽ @& ' .ʽ 2$!:&(ʽ +&2$,$"&-?ʹ 'ʽ $'?ʹ $''&,ʽ * ") 'ʽ $'?ʹ $+:ʽ #,ʽ 5$!:$.&6ʹ &4&,?ʹ +1!)ʽ <&++&-ʽ #,ʽ #$"6ʹ "#.&")&,ʽ * ")ʽ +1!)ʽ 2 , "+6ʹ #,ʽ #@$!!#ʹ #,ʽ '1886ʹ +)$--ʽ @&ʹ 8#,8& "&(ʽ] 5,#4 (&(ʽ $-*$?+6ʹ ")$"ʹ 8ʹ +)$--ʽ @&ʹ %$($&ʹ $22&$,ʽ "#ʹ ")&ʹ $"+8$!" #'ʽ #8ʹ ")&ʹ #%% ++ #'&,+ʽ #8ʹ +ʽ $>&+"?;+ʽ 1+"#%+ʽ ")$"ʹ ")&ʹ +$ (ʽ 2 , "+6ʹ #@$!!#6ʹ #,ʽ '18 ʽ *&,&ʹ #'ʽ @#$,(ʽ * ")#1"ʹ ")&ʹ D'#*-&(.&ʹ #,ʽ 5, 4 "?ʹ #8ʹ ")&ʹ *'&,ʽ #,ʽ $+"&,ʽ #8ʹ +1!)ʽ <&++&-ʽ #,ʽ #$"6ʹ $'(ʽ * ")#1"ʹ $'? * -81-ʽ &.-&!"ʹ #,ʽ E$'"ʹ #8ʹ ,&$+#'$@-&ʹ $,&ʹ #'ʽ ")& ,ʽ #,ʽ & ")&,ʽ #8ʹ ")& ,ʽ &)$-4&+6ʹ ")$"ʹ ")&'ʽ $'(ʽ 'ʽ +1!)ʽ $+&ʹ ")&ʹ +$ (ʽ #%% ++ #'&,+ʽ +)$--ʽ $'(ʽ ")&?ʹ $,&ʹ)&,&@?ʹ $1")#, L&(ʽ $'(ʽ ,&C1 ,&(ʽ "#ʹ (&- 4&,ʽ 12ʹ ")&ʹ +$ (ʽ <&++&-ʽ #,ʽ #$"ʹ "#ʹ ")&ʹ *'&,ʽ #,ʽ $+"&,ʽ #8ʹ ")&ʹ +$%&

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< ' '(' @&' " 81,")&,' &'$!"&(6)$" '#") '.')&,& '' !#'"$ '&('+)$-' Q ' '
&9"&'(' "# ,&'(&,'$'?' <&++&-' - $@-&' "# #,8& "1,&' #" $!!#1'" #8'$'? #N
@$!!# #,' '188' 8,#%' ")&' . ' '@& '.' '' 5$!:$.&+' #8' '&')1'N (D/32 # (2EDE'
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5$!:$.&+' #8' '&')1'(,&(' 5#1'(+' E& .)" &$!)' $" -&$+"6' #,'#'' $!!#1'" DEED7E' E"27'
#8'$'? #@$!!# %$(&' 12' '' #--+6' @& '.' ")&' 5,#(1!&' #8'$'(' %2#,"&(' # 3' OD' . /^
8,#%' ")&' "$"&' #8' *" '$'(' '' 5$!:$.&+' !#'"$ ' '.'),&&')1'(,&(' .D 3DG' . /' "2F #4' #
$'('"*&'"?5#1'(+' E& .)" &$!)' $" -&$+"6' #,'#'' $!!#1'" #8'$'? #@$!!# O 2/G' ^
#8' ")&' 3#% ' #'+' #8' ")&' 5 + ' %2 ,&' *) !)' %$? @&' +&2$,$"&(' #,' O2HH !' #I..!'
(4 (&(' '' $'? $''&,' * ") '' ")&' #1"*$,(' 5$!:$.&6' 2,#4 (&(' +1!)' C / 3E!' D2!'
5$!:$.&' @&' $' #.+)&$(6' $+:6')&+"6' #,' $+&' !#'"$ ' '.' #1,')1'(,&(' /' D42/E
$'(' 8 8"? 5#1'(+' E& .)" &" $" -&$+"6' #,'#'' $!!#1'" #8'$'? 1%' #8'
$'(' 8,#%' ")&' ('5-$'"$" #'+' '' $+:+' !#'"$ ' '.' *&'"? H$--#'+'
$" ")&' -&$+"6' #,'#'' $!!#1'" #8'$'? 2 , "+6' &$6' #,' #@$!!# ,&$--? 'N
"&'(&(' 8#,' ")&' #'+1%2" #'' #8' ")&' &$%&'' $'(' 5$++&'.&,+' #'' @#$,('
(1, '.' ")& ,' <#?$.&6' $'(' '#" @& '.' %#,&' '' T1$'" "?' ")$'' +' '&!&+N
+$,? 8#,' ")$" 51,2#+&6' #,' "# ,&'(&,' $'? +C1$,&B, ..&(' <&++&-' - $@-&' "#
#,8& "1,&' #'' $!!#1'" #8' $'? &$6' #,' #8' $'? 2 , "+' '' H-$++' #""-&+6'
@& '.A' ,&$--? 5$," #8' ")&' $,.# #8' +1!)') 2' $'(' '!-1(&(' '' ")&'
$' 8&+" #8' +1!)') 26' #,' "# ,&'(&,' $'? <&++&-' - $@-&' "# #,8& "1,&'
8' ,&$--? @#1'(' 8,#%' #'&' #,& .'' 5#," "# $'#")&,' #,& .'' 5#,"6' $'('
21,+1 '.' +1!)' <#?$.&6' E '(' $'(' E&$")&,' 2&,% "" '.

< ' '(' @&' " 81,")&,' &'$!"&(6')$" *)&'' $'? <&++&-' #,' #$" DEED7E' OD
@&-#'. '.' '' ")&' *)#-&' #,' '' 2$," "# +' $>&+"?;+' 1@>&!"+6' #,')$4 '.' -#'.'.'
'&' $-8' #8' ")&' 5&,+#'+' #'' @#$,(' 1@>&!"+' #8' +' $>&+"?6' +)$--' @&' A
8#1'(' * ") '' '&')1'(,&(' &$.1&+' #8' ")&' #$+" #8' ") +' D '.(#%6')$4 '.' '&
$'(' +)$--' '#" @, '.' "# 12#'' .'$-' %$(&' @?' $'? <&++&-' #,' #$" '' >27.' .'3"D'
+' $>&+"?;+' &,4 !&6' #,' '' ")&' &,4 !&' #8' ")&' &4&'1&6')# +" '.' ")&' +D/E #E' #'
2,#2&,' 5&'($'" $'(' '+.'6' '' #,(&,' "# @, '.' +1!)' <&++&-' #,' #$"
"#6' $'(' ")&,&12#'')$+&' +)$--' @&' . 4&'6' 8' $'? 5&,+#'' #,' 5&,+#'+' #'' $>&+"?6'
@#$,(' +1!)' <&++&-' #,' #$" +# !)$+&(' +)$--6' (1, '.' ")&')$+&' #,' 3"/ Z #4'
@&8#,&' +1!)' <&++&-' #,' #$" +)$--' @, '.' "#6' "),#*' #4&,@#$,(' $'? 5$," FD/O 2/G'
#8' ")&' $('.' #8' +1!)' <&++&-' #,' #$"6' #,' +)$--' +"$4&' #,' (&+",#?' $'? $'? H##(+'
5$," #8' +1!)' $('.6' "# 2,&4&'" & L1,&' ")&,&#86' ")$" ")&' $'(' '' +1!)' ?
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&+!$2 '.' 8,#%' +1!)' <&++&-+' #,' #$"+6' #,' 8,#%' $'? #,& .'' <&++&-' #,' DEH2C #4'
#$"6' (1, '.' $'?)$+&' %$(&' ")&,&#8' @?' $'? <&++&-' #,' #$" '' +' GDD O DG' I O'
$>&+"?;+' &,4 !&' #,' '' ")&' &,4 !&' #8' ")&' &4&'1&6' +)$--' @&' (&&%&('
$'(' "$:&'' "# @&' 1@>&!"+' #8' +' $>&+"?6' 1'-&++' " +)$--' @&' 2,#4&(' "#
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< ' '(' @&' " 8$,")&,' &'$!"&(')$" 8' $'? <&++&-' #,' #$" *)$"B' DEED7E' I'
&4&,' +)$--' @&' 8#1'(' * ") '' ")&' % "+' #8' $'? 5#," #8' ")&' V' "&(' + /3' Z 3" 2'
D '.(#%' *")' $' $,.# #'' @#$,(6' $'(' +1!)' <&++&-' #,' #$" +)$--' (2/4 !' 2#G'
$8"&,*$,(+' @&' 8#1'(' - .)" #,' '' $--$+"6' $'(' ")&' $+"&,' +' 1'$@-&' "# 2.3D/Z2/GE'
. 4&' $' (1&' !!#1'" #8' ")&' 5#," #,' 5-$!&' * ") '' ")&' V' "&(' D '.(#%' . I#G' # 27'
*)&,&' +1!)' <&++&-' #,' #$" +)$--')$4&' -&.$--? (+!)$,.&(')&,' $,.#6' 72E32#G' (2/4 '
+1!)' <&++&-' #,' #$" +)$--' @&' 8#,8& "&(' I#2HH I#3DG'
. /!' . /.D 3DG

< ' '(' @&' " 81,")&,' &'$!"&(')$" '#' <&++&-' #,' #$" @&-#'. '.' =D41723 #E'
*)#--?' #,' '' 2$," "# +' $>&+"?;+' 1@>&!"+' +)$--' +$-' 8,#%' ' +$V'.8,#%A
& ' ' +' #,' ' *")#1" $' -&$,$'!&6' *)&")&,' '' ID/#ED6!'
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Q ' # ' #'(' "#' +' $>&+"?6' '' 3#1@-&' ")&' <$-1&' #8' ")&' <&++&-' #,' #$"' $'('
#8' ")&' $,.#6' 8#,' (1-?' -$'(' '.' ")&' +$%&' $"' ")&' 5#,"' 8#,' *) !)'
")&' <&++&-' !-&$,+' ' $'(' &4&,?' +1!)' <&++&-' #,' #$"' '#"')$4 '.' +1!)'
-&$,$'!&6' #,' *) !)6')$4 '.' $' -&7 ,$'!&' 8#,' $' $,.#6' +)$--' @&' 8#1'('
- .)"' A#,A* ")' $'?' 5$,"' #8' ")&' $,.#' (+!)$,.&(' @&8! ;&' 3&D4&,?
")&,&#8' $"' ")&' 5#,"' +2&! 8 &(' '' ")&' -&$,$'!&6' X1'-&++' "),#1.)' &N
!&++ "?#,' 8#,' 5,&+&,4$" #'' #8' ")&' <&++&-' #,' #$"6' "#' @&' 2,#4&(' "#' ")&'
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8#,8& "&(

DEED7E' 3 ' O/ #4' 3 ' #' OD #4' H"2EDG' O6' DEED7E' /' 23E' .'3"D')2F6' /' #' +/DFD#3 FD' D/F HDN' # 3' O/ #4 #4' 3 !' O26' OD' . /DG' #3

< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' '' !$+&6$'?' <&++&-' #,' #$"'
- $@-&' "#' & L1,&' #,' 9$% '$" #'' 1'(&,' $'?' !"' #,' $*' 8#,' ")&' 5,&N
4&'" #'' #8' %1..-' '.' +)$--' '#"' @, '.' "#' #'' @& '.',&C1 ,&(' +#' "#' (#6'
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")&' 2,#2&,' 5&'($'"' $'(' '+ .'' #8' +' $>&+"?;+') 2+')# +"&(6' #,' @?'
$'?' <&++&-' #,' #$"' (1-?' &%2-#?&(' 8#,' ")&' 5,&4&'" #'' #8' %1..- '.6'
)$4 '.' $' 2,#2&,' 5&'($'"' $'(' '+ .'')# +"&(6' "' +)$--' @&' -$*81-' 8#,' ")&'
$2"$ '6' $+"&,6' #,' #")&,' 5&,+#'')$4 '.' ")&')$,.&' #,' #%%$'(' #8'
+1!)' <&++&-' #,' #$"' '' +' $>&+"?;+' $4?6' #,' &%2-#?&(' $+' $8#,&+$ (6'
X8 ,+"' !$1+ '.' $' H1'' "#' @&' 8 ,&(' $+' $' .'$-6[' "#' 8 ,&' $"' #,' '"#' +1!)'
<&++&-' #,' #$"' $'(' +1!)' $2"$ '6' $+"&,6' #,' #")&,' 5&,+#'' $!" '.'
'')+' (' #,' ++ +"$'!&6' #,' @?') +' 3 ,&!" #'6' +)$--' @&' $'(')&' +'
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DEED7E' OD7 #4 #4' 3 ' > E' B 25DE36&E' I O5DH3E' # 3' 3 ' " E3' 2#6' +D#G2#3!' #E 4#!' /' (7 I/E' IE I2776' Z /#' O6' > E' B 2^ 5DE36&E' " CE

' '(' @&' "' 81,")&,' &'$!"&(6')$"' 8' $'?' 5&,+#'' #,' 5&,+#'+'
+)$--' 8,#%' $'(' $8"&,' ")&' 2$++ '.' #8' ") +' !"' *&$,6' !$,,?6' #,')# +"' ''
#,' #'' @#$,(' $'?' <&++&-' #,' #$"' *)$"&4&,' @&-#'. '.' "#' $'?' #8' +'
$>&+"?;+' 1@>&!"+6' *)&")&,' ")&' +$%&' @&' &,!)$'' #,' #")&,* +&6'
* ")#1"' 2$," !1-$,' E$,,$'' 8#,' +#' (# '.' 8,#%' +' $>&+"?66' #,' +'
.)' (% ,$-' #8' (' ' #,' ")&' #%% ++ #'&,+' 8#,' &9&!1" '.'
K")&' 88 !&' #8' .)' (% ,$-' #8' (' ' +' $>&+"?;+' R$!:6'
!#%%#'-?' !$--&(' ")&' V' #'' R$!:6' #,' $'?' 5&'($'"6' '+ .'6' #,' #-#1,+'
1+1$--?' *#,'' @?' +' $>&+"?;+') 2+6' #,' $'?' -$.6' R$!:6' 5&'($'"6'
'+ .'6' #,' #-#1,+' ,&+&%@- '.' ")#+&' #8' +' $>&+"?6' #,' ")#+&' 1+&(' #''
@#$,(' +' $>&+"?;+') 2+6' #,' $'?' #")&,' '+ .'' #,' #-#1,+' ")$'' ")&'
'+ .'' #,' #-#1,+' @?' $'?' 5,#!-$%$" #'' #8' +' $>&+"?' '#*' '' 8#,!&'
#,')&,&$8"&,' "#' @&' ++1&(' 2,&+!, @&(' "#' @&' *#,'6' ")&'' $'(' '' &4&,?
+1!)' $+&' ")&' $+"&,' #,' #")&,' 5&,+#'')$4 '.' ")&')$,.&' #,' # 'B'
%$'(' ")&,&#86' #,' ")&' * '&,' #,' * '&,+' @& '.' #'' @#$,(' ")&' +$%&6'
$'(' &4&,?' #")&,' 5&,+#'' +#' #88&'(' '.6' +)$--' 8#,8& "' $'(' 2$?' ")&' 1%6' #8'
8"?' 5#1'(+' $'(' ")$"' "' +)$--' @&' -$*81-' 8#,' $'?' 88 !&,' #,' 88 !&,+'
#8' +' $>&+"?;+' $4?' #'' 1--' 5$?6' #,' 8#,' $'?' 88 !&,' #,' 88 !&,+' #8'
1+"#%+' #,' 9! +&6' "#' &'"&,' #'' @#$,(' $'?' +1!)' <&++&-' #,' #$"6' $'('
"#' +& L&' $'?' +1!)' -$.6' R$!:6' 5&'($'"6' '+ .'6' #,' #-#1,+6' $'(' ")&'
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&4&,?ʼ #$"ʼ @&-#' . ' .ʼ "#ʼ +1!)ʼ <&++&-ʼ ")&ʼ $%&ʼ #8ʼ +1!)ʼ <&++&-6ʼ $'(ʼ ")&ʼ
5#,"ʼ #,ʼ 5-$!&ʼ "#ʼ *) !)ʼ +)&ʼ @&-#' .+6ʼ $'(ʼ ")&ʼ $+"&,;+ʼ $%&ʼ * ") 'Bʼ "2FDʼ 3"D/D #
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*#ʼ '!)&+ʼ 'ʼ &' ,")6ʼ #'ʼ $ʼ -$! :ʼ H,#1'(6ʼ #'ʼ 2$ 'ʼ #8ʼ ")&ʼ #,8& "1,&ʼ ?&++&-6+ /3!
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+C1$,&B, . .&(6ʼ !#% ' .ʼ "#ʼ #,ʼ $,, 4 ' .ʼ $"ʼ $'?ʼ 5#,"ʼ #8ʼ ")&ʼ V ' "&(ʼ D ' .N DEEDTEʼ # 3ʼ
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#, #$" 8#, *) !) +1!) !&'!& +"# @& ++1&(%$? @& %#,& ")$" .'3"D DEED7
'& ")#1+$'(5#1'(+

'(@& " 81,")&, &'$!"&(6)$" $-- #'(+ . 4&' @? 5&,+#'+ HD#HD
1'(&, ")& .& #8 *&'"?B#'& &$,+6 " 21,+1$'!& #8 ")& 3 ,&!"#'+
)&,& " !#'"$ '&(6 +)$-- @& 4$- ($'(&88&!"1$- "# $-- '"&'"+ $'(51,B 4$- (7A X
2#+&+6 $'? ") '. " $'? !"6 #, $'? $* #, 1+"#%6 "# ")& !#'",$,?
" $'?* +& '#"* ")+"$'('.

'(@& " 81,")&, &'$!"&(6)$" *)&" $'? <&++&- #, #$"DEED7E # 3
+)$-- @& 8#1'(#, (+!#4&,&("#)$4& @&&" 1+&(#, &%2-#?&(" $'? 3 OD I EDG #
$''&, #, " $'? % "+ #")&, ")$" +1!) $+ +)$-- @& +2&! 8 &(" ")& 2#6 B 2##D/
!&'!&)&,&@? ,&C1 ,&(6 #, 8 +1!) !&'!& +)$-- '#" @& #" @#$,(# 3 O D#^
+1!) <&++&- #, #$"6 #, +)$-- '#" $" $'? %& @& 2,#(1!&($'(3 #DG #
(&- 4&,&(8#, 9$% '$"#" "# $'? 88 !&, #, 88 !&,+ #8 ")& ,%?6 3"D HD#HD
$4?6 #, $, '&+ (1-? &%2-#?&(8#, ")& 5,&4&'"#" #8 %1..- '.6 Z " H" E 3
$'(#" 1-- 5$?6 #, $'? 88 !&, #8 1+"#%+ #, 9! +&6 (&%$'('. ")& OD C/ G I HDG
+$%&6 ")$" ")& " $'(" &4&,? +1!) $+& +1!) <&++&- #, #$"6 $'($-- Z "D# GD^
")& H##(+6-$(&" #" @#$,(6 +)$-- @& 8#,8& "&(O 2#GDG

5,#4 (&($-*$?+6 $'(@& " 81,")&, &'$!"&( )$" '#") '. (D/32 # DE
@&,& " !#'"$ '&(+)$-- &9"&'(#, @& (&&%&(#, "$:&" "# &9"&'("# 23E!
$'? <&++&-6 #$"6 #, 1..&, @&-#'. '. "# $'? #8 ")& #?$- $% -?6 7=",&C1%&(
#, @& '. " ")& &,4 !& #8 ")& $4?6 < !"1$-- '.6 ,('$'!&6 1+"#%+6 3 OD7 HD#EDG 5
9! +&6 #, 5#+" 88 !&6 '#, "# $'? E)$-& #$" #, #$" +#-&-?
&%2-#?&(" ")& +)&, &+6 '#, "# $'? #$" @&-#'. '. "# $'? +C1$,&B
, ..&(

T T' L' ' L' B ' ' (2CW

' , . . &(' <&++&-' '' ")&' &, !)$'' &,4 !&6' ' !,' "#' 0$'?' 8&' #$"' #,'
#*' #$" 1+&(' '' "#* ' .' <&++&-+' @&-#' . ' .' "#' - !&' +&(' 5 -#"+6' '#,'
"#' $'?' #$" 1+&(' +#-&-?' '' 4&,+' #,' '-$'(' $4 .$" #'6' '#,' "#' $'?'
#$"+' +#-7?' 1+&(' '' 8 +) ' .' #'' ")&' #$+"+' #8' ")&' #,")' $'(' E&+"
.)-$'(+' #8' ' '#,' "#' $'?' #$"+' +#' 1+&(' #'' ")&' #$+" #8'

+D#2736' . /' H I#3D/.D 3^ #4' /' .27E .6^ #4' HD#HDE!' /' 02] #4' IED' 3"D/D .
<6' '(' @&' " 81,")&,' &'$!"&(6')$" 8' $'?' 5&,+#'' #,' 5&,+#'+'
+)$--' !#1'"&,8& "6' &,$+&6' $-"&,6' #,' 8$-+ 8?6' #,' !$1+&' "#' @&' !#1'"&,8& "&(6'
&,$+&(6' $-"&,&(6' #,' 8$-+ 8 &(6' $'?' !&'!&' +#' "#' @&' . ,$'"&(' $+' $8#,&+$ (6'
#,' +)$--' : '#* ' .-?' %$:&' 1+&' #8' $'?' !&'!&' +#' !#1'"&,8& "&(6' &,$+&(6'
$-"&,&(6' #,' 8$-+ 8 &(6' +1!)' 5&,+#'' #,' 5&,+#'+' +)$--' 8#,' &4&,?' +1!)'
88&'!&' 8#,8& "")&' 1%' #8' 4&')1'(,&(' 5#1'(+

> Z' 7 #4' #GE' 2/D' 3 ' OD' # . /HD
<' '(' @&' " 81,")&,' &'$!"&(')$" '#' #'(' . 4&'' #'' $!!#1'"
#8' ")&' !&'!&' #8' $'?' <&++&-' #,' #$" 1'(&,'")&' +$ (; !" 8#,' ")&' 5,#4&'B'
"#'' #8' %1. . - ' .' +)$--' @&' !$'!&--&(' 1'"-' ")&' 2$!&' #8' *&-4&'
#'")+' $8"&,' ")&' !&'!&' 8#,' *) !)' +1!)' #'(')$(' @&&'' &'"&,&('
'"#' +)$--')$4&' @&&'' (&- 4&,&(' 12' "#' ")&' 2,#2&,' 88 !&,' #8' ")&' 1+N
"#%+6' $'(' +1!)' #'(' +)$--' ,&%$ '' '' 81--' #,!&' $'(' 88&!" 8#,'
*&-4&' #'")+' $8"&,' ")&' (&- 4&, ' .' 12' #8' ")&' !&'!&' $+' $8#,&+$ (

HD#HDE' 2#G' #GE' 4/2#3DG' C/D^ F IE' 3 ' 3" E' H3' 3 ' H #^ 3 # I D' F27 G
<' '(' @&' " 81,")&,' &'$!"&(6')$" $--' !&'!&+' 8#,' $'?'
<&++&-+' #,' #$"+' . ,$'"&(' '' 21,+1$'!&' #8' $'?' !" ,&-$" ' .' "#' ")&'
1+"#%+' +)$--' !#'" '1&' 4$- (' 8#,' $--' ")&' 51,2#+&+' 8#,' *) !)' +1!)'
!&'!&+' *&,&' ,&C1 ,&(6' $'(' $--' #'(+' . 4&'' '' 21,+1$'!&' #8' $'?'
+1!)' !" +)$--' !#'" '1&' 4$- (' $'(' %$?' @&' &'8#,!&(6' $'?' ") ' .')&,& ''
!#'"$ '&(' '#"* ")+"$'(' .

+/ F E #E' 2E' 3 ' HD#HDE'
<' '(' @&' " 81,")&,' &'$!"&(6')$" $--' ")&' 5,#4 + #'+'
)&,& '' !#'"$ '&(' ,&-$" ' .' "#' ")&' - !&'+ ' .' #8' <&++&-+' $'(' #$"+'
H1&,'+&?' Z!' &9"&'(' "#' ")&' +-$'(+' #8' ' & ' ' +
K; U $'('

Q ' '
<' '(' @&' " 81,")&,' &'$!"&(6')$" 8' $'?' H##(+' - $@-&' "#'
")&' 5$?%&'" #8' 31" &+' +)$--' @&' 1'+) 22&(' 8,#%' $'?' <&++&-' #A' #$"
GE' I#^ E" CCDG' Z 3"^ I3' +26 0D#3' .' * I36!' 2#G' C/ " O 3DG' GE!' 7 2O7D' 3 ' + /.D 3 I /D!' Z 3"' 3" D' 23E!' 7 I EDG' # =D^ 0 F27
'' ")&' V' "&(' D ' . (#%' #,' ")&' ' X 1+"#%+' #,' #")&,' 31" &+'
'#" @& ' .' 8 ,+" 2$ (' #,' +&!1,&(6[#,' 8' $'?' 2,#) @ "&(' H##(+' *)$"N
+#&4&,' +)$--' @&' %2#,"&(' '"#' $'?' 5$," #8' ")&' V' "&(' D ' . (#%' #,' #8'
' ' ' '#,' 8' $'?' H##(+' *)$"+#&4&,' *) !)' +)$--')$4&' @&&''
$,&)#1+&(' #,' #")&, +&' +&!1,&(' '' ")&' V' "&(' D ' . (#%6' &")&,' 8#,'
#%&' #'+1%2" #'' #,' 92#,"$" #'6' +)$--' @&' !-$'(&+" '&-?' #,' --&.$--?'
,&%#4&(' 8,#%' #,' #1" #8' $'?' E$,&)#1+&' #,' 5-$!&' #8' &!1, "?6' ")$"
")&'' $'(' '' +1!)' $+&' $--' +1!)' H##(+' $+' $8#,&+$ (' +)$--' @&' 8#,8& "&(>
"#.&")&,' * ")' $--' #,+&+' $'(' #")&,' ' %$-+6' $'(' $--' $,, $.&+' $'('
#")&,') ' .+6' %$(&' 1+&' #8' '' ")&' &%#4$-' #8' +1!)' H##(+

C / 3E' 2#G' O2HH ' 7 &,%:"#^A' OD' GDD O DG' /I#'
' '(' @&' " 81,")&,' &'$!"&(6')$" $--' 2 , "+' #,' #@$!!#'
*) !)' +)$--' @&' 8#1'(' ,&%#4 ' .' * ")#1" $' -&.$-' 5&,% " 8#,' ")&' +$%&'
(&&%&(' "#' @&' 2 , "+' #,' #@$!!#' ,&+2&!" 4&-?' - $@-&' "#' $2(
1'+) 22&(' * ")#1" 5$?%&'" #8' 31"?6' 1'-&++' ")&' 5$,"?' '' *)#+&'
5#++&++ #'' ")&' +$%&' +)$--' @&' 8#1'(' #,' +& L&(' +)$--' 2,#4&' "#' ")&
!#'",$,?
' #G

' '(' @&' "' 81,")&,' &'$!"&(6')$"' $--' H##(+' ")&' %2#,"$" #'' #8' *) !)' +' '' $'?' E$?' ,&+", !"&(6' *) !)' $,&' #8' $' 3&+!, 2" #'' $(% +N + @-&' "#' 31"?6' $'(' *) !)' +)$--' @&' 8#1'(' $'(' +& L&(' '' ")&' V' "&(' D '.(#%' 1'(&,' $'?' $*' ,&-$" '.' "#' ")&' 1+"#%+' #,' 9! +&6' +)$--' 8#,' ")&' 51,2#+&' #8' 2,#!&&('.' 8#,' ")&' #,8& "1,&' #8' ")&%6' #,' 8#,' $'?' 5&'$-"?' '!1,,&(' '' ,&+2&!"' #8' ")&%6' @&' (&+!, @&(' '' $'?' '8#,%$" #'' &9) @ "&(' #'' $!!#1''' #8' +1!)' #,8& "1,&' #,' 5&'$-"?' $+' H##(+' - $@-&' "#' $'(' 1'+) 22&(' * ")#1"' 5$?%&''' #8' 31" &+

Q ' '
=DE3/ H3DG'
GE' 3 ' OD'
GDD O DG' / I#
GE' . /' 3"D'
+ I /C ED' .'
C/ HDDG #4'
. /A /.D 3 I /D

' '(' @&' "' 81,")&,' &'$!"&(6')$"' 8' $'?' H##(+' *) !)' $,&' 2,#) @ "&(' "#' @&' &92#,"&(' +)$--' @&' 21"' #'' @#$,(' $'?' <&++&-' #,' #$"' * ")' '"&''' "#' @&' -$(&'' #,' +) 22&(' 8#,' 92#,"$" #'6' #,' +)$--' @&' @,#1.)"' "#' $'?' T1$?6' E)$,86' #,' #")&,' 5-$!&' '' ")&' V' "&(' D '.(#%' '' #,(&,' "#' @&' 21"' #'' @#$,(' $'?' <&++&-' #,' #$"' 8#,' ")&' 51,2#+&' #8' @& '.' &92#,"&(6' #,' 8' $'?' H##(+' *) !)' $,&' 2,#) @ "&(' "#' @&' &92#,"&(' +)$--' @&' 8#1'(' '' $'?' 5$!:$.&' 2,#(1!&(' "#' ")&' 88 !&,' #,' 88 !&,+' #8' ")&' 1+"#%+' $+' !#'"$ ' '.' H##(+' '#"' +#' 2,#) @ "&(6' ")$"' ")&'' $'(' '' &4&,?' +1!)' $+&6' '#"' #'-?' $--' +1!)' 2,#) @ "&(' H##(+6' @1"' $-+#' $--' #")&,' H##(+' 2$!:&(' ")&,&* ")6' +)$--' @&' 8#,8& "&(

+/ " O 3DG'
GE'
E" CCDG' /'
Z23D/O /#D!'
Z 3" #3D#33 '
OD' D&C /3DG!'
H' . /.D 3DG!'
Z 3"' 27'
GE' C2H]DG'
3"D/DZ 3"

' '(' @&' "' 81,")&,' &'$!"&(6')$"' $--' <&++&-+' $'(' #$"+6' $'(' $--' H##(+' *)$"+#&4&,6' - $@-&' "#' #,8& "1,&' 1'(&,' ") +' #,' $'?' #")&,' !"' ,&-$" '.' "#' ")&' &4&'1&' #8' 1+"#%+6' +)$--' $'(' %$?' @&' +& L&(' '' $'?' 5-$!&6' &")&,' 12#'' $'(' #,' E$"&,6' @?' $'?' 88 !&,' #,' 88 !&,+' #8' +' $>&+"?;+' ,%?6' $4?6' #,' $, '&+6' (1-?' &%2-#?&(' 8#,' ")&' 5,&N 4&'" #'' #8' %1..-'.6' $'(' #'' 1--' 5$?6' #,' @?' $'?' 88 !&,' #,' 88 !&,+' #8' 1+"#%+' #,' 9! +&6' #,' @?' $'?' 5&,+#'')$4 '.' 1")#, "?' "#' +& L&' 8,#%' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' 1+"#%+' #,' 9! +&' ' $'(' $-- <&++&-+6' #$"+6' $'(' H##(+' +#' +& L&(' +)$--6' $+' +##'' $+' !#'4&' &'"-?' %$?' @&6' @&' (&- 4&,&(' '"#' ")&' $,&' #8' ")&' 2,#2&,' 88 !&,' $22# '"&(' "#' ,&!& 4&' ")&' +$%&

DEED7E!'
23E!' 2#G'
GE' O 26'
OD' ED dDG' O6'
'.. HD/E' 2#G'
+D/E #E' "D/D^
#' O D#3 #DG!'
2#G' O I E3' OD'
GD7 FD/DG' 3 '
3"D' C/ CD/'
'.. HD/

' '(' @&' "' 81,")&,' &'$!"&(')$"' 8' $'?' 88 !&,' #,' 88 !&,+' #8' ")&' 1+"#%+' #,' 9! +&6' #,' $'?' 88 !&,' #,' 88 !&,+' #8' ")&' ,%?6' $4?6' #,' $, '&+6' (1-?' &%2-#?&(' 8#,' ")&' 5,&4&'" #'' #8' %1..-'.6' $'(' #'' 1--' 5$?6' #,' $'?' #")&,' 5&,+#'' #,' 5&,+#'+' *)$"+#&4&,' (1-?' &%2-#?&(' 8#,' ")&' 5,&4&'" #'' #8' %1..-'.6' +)$--' %$:&' $'?' !#--1+ 4&' & L1,&6' #,' (&- 4&,' 126' #,' %$:&' $'?' .,&&%&''' "#' (&- 4&,' 12' #,' '#"' "#' +& L&6' $'?' <&++&-' #,' #$"' #,' $'?' H##(+' - $@-&' "#' #,8& "1,&6' #,' +)$--' "$:&' $'?' , @&6' H,$"1 "?6' &!#%2&'!&6' #,' &*$,(' 8#,' ")&' &.-&!"' #,' #'2&,8#,%$'!&' #8') +' 31"?6' &4&,?' +1!)' 88 !&,' #,' #")&,' 5&,+#'' +)$--' 8#,8& "' 8#,' &4&?' +1!)' 88&'!&' ")&' 1%' #8' 4&')1'(,&(' 5#1'(+6' $'(' @&' ,&'(&,&(' '!$2$@-&' #8' +&,4 '.' +' $>&+"?' '' $'?' 88 !&' *)$"N &4&,6' &")&,' 4 - #,' - "$,?' $'(' &4&,?' 5&,+#'' *)#' +)$--' . 4&' #,' #88&,6' #,' 2,#%' +&' "#' . 4&' #,' 2,#!1,&' "#' @&' . 4&'6' $'?' , @&6' &!#%N 2&'!&6' #,' &*$,(' "#6' #,' +)$--' %$:&' $'?' !#--1+ 4&' .,&&%&''' * ")6' $'?' +1!)' 88 !&,' #,' 5&,+#'' $+' $8#,&+$ (6' "#' '(1!&') %' '' $'?' E$?' "#' '&.-&!"') +' 31"?6' #,' "#' (#6' !#'' !&$-6' #,' !#'' 4&' $"' $'?' !' *)&,&@?' $'?' #8' ")&' 5,#4 + #'+' #8' $'?' !' #8' 5$,- $%&''' ,&-$" '.' "#' ")&' &4&'1&' #8' 1+"#%+' %$?' @&' &4$(&(6' +)$--' 8#,8& "' ")&' 1%' #8' *#')1'(,&(' 5#1'(+

88+N D#273 6' #
'.. HD/E' 2#G'
+D/E #E' O2]^
#4' H 77 I E FD'
D d I /DE' /'
32] #4 / ODE!'
2#G' # +D/^
E #E' ..D/ #4'
3"DO

Q

< '(@& " 81,")&, &'$!"&(6)$" " +)$-- $'(%$? @&
-$*81- "# $'(8#, $'? 88 !&, #, 88 !&,+ #8 ")& ,,$?6 $4?6 #,
$, '&+6 (1-? &%2-#?&(8#, ")& 5,&4&'" #" #8 %1..- '.6 $'(#" 1--
5$?6 #,8#,6 $'? 88 !&, #, 88 !&,+ #8 1+"#%+6 2,#(1! '.) + #, ")& ,
E$,,$'" #, 3&21"$" #" X 8 ,&C1 ,&([6 "# .# #" @#$,($'? <&++&- *) !)
+)$-- @& * ") " ")& % "+ #8 $'? #8 ")& 5#,"+ #8 ") + D '.(#%6 $'(
"# ,1%%$.& $'("# +&$,!) ")& $@ " $'($-- #")&, 5$,"+ #8 +1!)
<&++&- 8#, 2,#) @ "&($'(1'!1+"#%&(H##(+6 $'("# ,&%$ " #" @#$,(
+1!) <&++&- (1, '. ") & *)#-& %& ")$" ")& +$%& +)$-- !#'" '1&
* ") " ")& % "+ #8 +1!) 5#,"6 $'($-+# "# +&$,!) $'? 5&,+#" #,
5&,+#'+ & ")&, #" @#$,(#, *)# +)$--)$4& -$'(&(8,#% $'? <&++&-6
2,#4 (&(+1!) 88 !&, #, 88 !&,+ +)$--)$4& .##(&$+#" "# +122#+&
")$" +1!) 5&,+#" #, 5&,+#'+)$") #,)$4& $'? 1'!1+"#%&(#, 2,#N
) @ "&(H##(+ +&!,&"&($@#1") +6)&,6 #, ")& , 5&,+#" #, 5&,+#'+ >
$'(8 $'? 5&,+#" +)$-- #@+",1! $'? +1!) 88 !&, #, 88 !&,+ " .# '.
#, ,&%$ ' '. #" @#$,(6 #, " &'"&, '. #, +&$,!) '. +1!) <&++&- #,
5&,+#'6 &4&,? +1!) 5&,+#" +)$-- 8#,8& $'(-#+& ")& 1%6 #8 '&
)1'(,&(5#1'(+

D. /D +D/^
E #E 2/D
ED2/H"DG
3"D6 026
/D\I /D 3
OD 32]D#
OD. /D 2 ,IE^
3HD / 2 EI^
CD/ / '.. HD/
.3"D (IE^
3 OE Z"
E"277 GD3D/^
O #D Z"D3"D/
3"D/D 2/D
/D2E #207D
/ I#GE .
IEC H #

< '(@& " 81,")&, &'$!"&( )$" @&8#,& $'? 5&,+#" +)$--
@& +&$,!)&(@? $'? +1!) 88 !&, #, 88 !&,+ $+ $8#,&+$(" +)$-- @&
-$*81- 8#, +1!) 5&,+#" "# ,&C1 ,& +1!) 88 !&, #, 88 !&,+ "# "$:&
) % #,)&, @&8#,& $'? R1+" !& #8 ")& 5&$!&6 #, @&8#,& ")& #--&!"#,6
#%2",#--&,6 #, #")&, +12&, #, 88 !&, #8 ")& 1+"#%+6 *)# +)$-- (&N
"&,% '& *)&")&, ")&,& + ,&$+#'$@-& H,#1'("# +122#+& ")$" +1!)
5&,+#")$+ $'? 1'!1+"#%&(#, 2,#) @ "&(H##(+ $@#1") + #,)&,
5&,+#" $'(8 " +)$-- $22&$, "# +1!) R1+" !&6 #--&!"#,6 #%2",#--&,6B
#, #")&, +12&, #, 88 !&, #8 1+"#%+6 ")$")&,& + ,&$+#'$@-& H,#1'(
"# +122#+& ")$" +1!) 5&,+#")$+ $'? 1'!1+"#%&(C, 2,#) @ "&(H##(+
$@#1") + #,)&, 5&,+#'6)$" ")&" +1!) R1+" !&6 #--&!"#,6 #%2",#--&,6
#, #")&, +12&, #, 88 !&, #8 1+"#%+ +)$-- (,&!" +1!) 5&,+#" "# @&
+&$,!)&("+1!) $''&, $+)& +)$-- ") '8 " @1" 8 " +)$-- $22&$,
"# +1!) R1+" !&6 #--&!"#,6 #%2",#--&,6 #, #")&, +12&, #, 88 !&, #8
1+"#%+ ")$" ")&,& + '#" ,&$+#'$@-& H,#1'("# +122#+& ")$" +1!)
5&,+#")$+ $'? 1'!1+"#%&(#, 2,#) @ "&(H##(+ $@#1") + #,)&,
5&,+#'6 ")$" ")&" +1!) R1+" !&6 #--&!"#,6 #%2",#--&,6 #, #")&,
+12&, #, 88 !&, #8 6 1+"#%+ +)$-- 8#,") * ") (+!)$,.& +1!) 5&,+#'6
*)# +)$-- '#" " +1!) $+& @& -$@-& "# @& +&$,!)&($'(&4&,? +1!)
88 !&, #, 88 !&,+ $+ $8#,&+$(+$'($,&)&,&@? $1")#, L&($'(
,&C1 ,&("# "$:& +1!) 5&,+#'6 12#" 3&%$'(6 @&8#,& $'? +1!) R1+" !&6
#--&!"#,6 #%2",#--&,6 #, #")&, +12&, #, 88 !&, #8 1+"#%+6 (&N
"$ ''.) % #,)&, " ")& %&$'" %&] 5,#4 (&($-*$?+6 ")$" '#
5&,+#" @& '.$ &%$-& +)$-- @& +&$,!)&(@? $'? #")&, 5&,+#" ")$"
$ &%$-& (1-? $1")#, L&(8#, ")$" 51,2#+& @? ")& #%% ++ #'&,+ #8
+ $>&+"?;+ 1+"#%+

+D#2736 #
'.. HD/E. /
B EH #GIH3
Z 3" /DECDH3
3 D2/H"!

< '(@& " 81,")&, &'$!"&( )$" 8 $'? +1!) 88 !&, #,
88 !&,+ +)$-- '#" "$:& +1!) 5&,+#" *") ,&$+#'$@-& 3 +2$"!) @&8#,&
+1!) R1+" !&6 #--&!"#,6 #%2",#--&,6 #, #")&, +12&, #, 88 !&, #8
1+"#%+6 *)&" +# ,&C1 ,&(6 #, +)$-- ,&C1 ,& $'? 5&,+#" "# @&
+&$,!)&(@?) %6 '#")$4 '. ,&$+#'$@-& H,#1'("# +122#+& ")$"
+1!) 5&,+#")$+ $'? 1'!1+"#%&(#, 2,#) @ "&(H##(+ $@#1") +
#,

K ' L B ' ' (2C V T

#,')&,' 5&,+#'6 ")$" +1!)' 88 !&,' +)$-- 8#,8& " $'(' 2$? ")& 1% #8 N* +'
&'' 5#1'(+'

< ' '(' @& " 81,")&,' &'$!"&(6)$" 8 $'? 5$++&'.&,' #,' +D#2736 #
#")&,'5&,+#'' #'' @#$,(' $'? <&++&- #,' #$" +)$--6 12#'' @& '.' C1&+" #'&(' (&B
@? $'? 88 !&,' #,' 88 !&,+ #8 + $>&+"?;+ 1+"#%+6 *)&")&,')& #,' @.78#,& 7"
+)&)$+ $'? #,& .'' H##(+ 12#'') + #,')&,' 5&,+#'6 #,' '') + #,')&,' GE 2O I3
5#++&++ #'6 (&'? ")& +$%&6 $'(' $'? +1!)' H##(+ +)$--6 $8"&,' +1!)' ")&%
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< R' '(' @&' "' 81,")&,' &'$!"&(')$"' $'?' 5&,+#'' #,' 5&,+#'+' *)#' +)$--' @?' $'?' &$'+' 2,#!1,&' #,') ,&' $'?' 5&,+#'' #,' 5&,+#'+6' #,' *)#' +)$--' (&21"&6' $1")#, L&6' #,' (,&!"' $'?' 5&,+#'' #,' 5&,+#'+' "#' 2,#!1,&' #,') ,&' $'?' 5&,+#'' #,' 5&,+#'+6' "#' $++&%@-&' 8#,' ")&' 51,2#+&6'#86'@& ' .' !#'!&,'&(' '' ")&' -$'(' .' #,' 1'+) 22 ' .' #,' !$,,? ' .' #,' !#'4&? ' .' $'?' H##(+' *) !)' $,&' 2,#) @"&(' "#' @&' %2#,"&(6' #,' ")&' 31" &+' 8#,' *) !)')$4&' '#"' @&&'' 2$ (' #,' +&!1,&(6' +)$--' 8#,' &4&,?' 5&,+#'' +#' 2,#!1,&(' #,') ,&(' 8#,8&'' ")&' 1%' #8' '&')1'(,&(' 5#1'(+

+D#2736' # +D/E #E' C/ ' H I / #4' 3"D/E' 3 ' 2EED O O7D' . /' 2EE E3 #4' # I#E" CC #4' C/ " O 3DG' GE

< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' 8' $'?' 5&,+#'+' "#' ")&' 1%@&,' #8'),&&' #,' %#,&6' $,%&(' * ")' ,&B$,%+' #,' #")&,' #88&'+4&' E&$2#'+6' +)$--6' * ") '' ")&' V' "&(' D '.(#%6' #,' * ") '' ")&' % "+' #8' $'?' 5#,"6' $,@#1,6' #,' ,&&:' ")&,&#86' @&' $++&%@-&(' '' #,(&,' "#' @&' $ (' .' $'(' $++ +" ' .' '' ")&' --&.$-' -$'(' .6' ,1'' ' .6' #,' !$,,? ' .' $*$?' #8' $'?' 2,#) @"&(' H##(+6' #,' $'?' H##(+' - $@-&' "#' $'?' 31" &+' *) !)')$4&' '#"' @&&'' 2$ (' #,' +&!1,&(6' #,' '' ,&+!1 ' .' #,' "$: ' .' $*$?' $'?' +1!)' H##(+' $+' $8#,&+$ (6' $8"&,' & L1,&6' 8,#%' ")&' 88 !&,' #8' ")&' 1+"#%+' #,' #")&,' 88 !&,' $1")#, L&(' "#' +& L&' ")&' +$%&6' #,' 8,#%' $'?' 5&,+#'' #,' 5&,+#'+' &%2-#?&(' @?' ")&%' #,' $++ +" ' .' ")&%6' #,' 8,#%' ")&' 5-$!&' *)&,&' ")&' +$%&' +)$--')$4&' @&&'' -#(.&(' @?' ")&%6' #,' '' ,&+!1 ' .' $'?' 5&,+#'' *)#' +)$--')$4&' @&&'' $22,&)&'(&(' 8#,' $'?' #8' ")&' 88&'!&+' %$(&' &-#'?' @?' ") +' #,' $'?' !"' ,&-$" ' .' "#' ")&' 1+"#%+6' #,' '' ")&' 2,&B' 4&'" ' .' ")&' 22,&)&'+#'' #8' $'?' 5&,+#'' *)#' +)$--')$4&' @&&'' .1 -"?' #8' +1!)' 88&'!&6' #,' '' !$+&' $'?' 5&,+#'+' "#' ")&' 1%@&,' #8'),&&' #,' %#,&6' +#' $,%&(' $+' $8#,&+$ (6' +)$--6' * ") '' ")&' V' "&(' D '.(#%6' #,' * ") '' ")&' % "+' #8' $'?' 5#,"6' $,@#1,6' #,' ,&&:' ")&,&#87' @&' +#' $ (' .' #,' $++ +" ' .6' &4&,?' 5&,+#'' +#' #88&'(' .6' $'(' &4&,?' 5&,+#'' $ (' .6' $@&"' ' .6' #,' $++ +" ' .' ")&,& '6' +)$--6' @& ' .' ")&,&#8' !#'4 !"&(6' @&' $(>1(.&(' .1 -"?' #8' &-#'?6' $'(' +188&,' 3&$")' $+' $' &-#'

3 "/DD' /' O /D' 2/ O DG' +D/E #E' 2EED O O7DG' 3 ' 2EE E3' #' 3"D' 77D427' 72#G^ #4' .' 2#6' GE!' /' #' 3"D' /DEH I #4' .' GE' ED dDG!' 3 ' OD' GDD O DG' 4 I 736' .' AD7 #6

' '(' @&' "' 81,")&,' &'$!"&(6')$"' 8' $'?' 5&,+#'' +)$--' %$- N ! #1+-?' +)##"' $"' $'?' <&++&-' #,' #$"' @&-#'. ' .' "#' +' $>&+"?;+' $4?6' #,' '' ")&' &,4 !&' #8' ")&' &4&'1&6' * ") '' '&')1'(,&(' &$.1&+' #8' $'?' 5$,"' #8' ")&' #$+"' #8' ")&' V' "&(' D '.(#%6' #,' +)$--' %$- ! #1+-?' +)##"' $"6' %$' %6' #,' ($'.&,#1+-?' *#1'(' $'?' 88 !&,' #8' ")&' ,%?6' $4?6' #,' $, '&+6' @&' ' .' (1-?' &%2-#?&(' 8#,' ")&' 5,&4&'" #' #8' %1..-' ' .6' $'(' #' 1--' 5$?6' #,' $'?' 88 !&,' #8' 1+"#%+' #,' 9! +&6' #,' $'?' 5&,+#'' $!" ' .' '') +' (' #,' ++ +"$' !&6' #,' (1-?' &%2-#?&(' 8#,' ")&' 5,&4&'" #' #8' %1..-' ' .6' '' ")&' (1&' 9&!1" #' #8') +' 88 !&' #,' 31"?6' &4&,?' 5&,+#'' +#' #88&'(' .6' $'(' &4&,?' 5&,+#'' $ (' .6' $@&"' ' .6' #,' $++ +" ' .' ")&,& '6' +)$--6' @& ' .' -$*81--?' !#'4 !"&(6' @&' $(>1(.&(' .1 -"?' #8' &-#'?6' $'(' +188&,' 3&$")' $+' $' &-#'

+D/E #E' E" 3 #4' 23' 2#6' 23' OD7 #4 #4' 3 ' 3"D') 2F6!' /' #' 3"D' D/^ F HD' .' 3"D' =DFD#I D!' H' GDD O DG' 4 I 736' .' AD7 #F

' '(' @&' "' 81,")&,' &'$!"&(6')$"' 8' $'?' 5&,+#'' @& ' .' '' !#%N 2$'?' * ")' %#,&' ")$"' #1,' #")&,' 5&,+#'+' @&' 8#1'(' * ")' $'?' H##(+' - $@-&' "#' #,8&'1,&' 1'(&,' ") +' #,' $'?' #")&,' !"' ,&-$" ' .' "#' ")&' &4&'1&' #8' 1+"#%+' #,' 9! +&6' #,' '' !#%2$'?' * ")' '&' #")&,' 5&,N +#'6' * ") '' 4&' -&+' #8' ")&' &$' #$+"' #,' #8' $'?' '$4 .$@-&' 4&,' -&$(' .' ")&,&8,#%6' * ")' +1!)' H##(+6' $'(' !$,,? ' .' #88&'+4&' ,%+' 6#,' E&$2#'+6' #,' (+.1 +&(' '' $'?' E$?6' &4&,?' +1!)' 5&,+#'' +)$--' @&' $(N >1(.&(' .1 -"?' #8' &-#'?6' $'(' +)$--6' #'' #'4 !" #'' #8' +1!)' 88&'!&6' @&' ",$'+2#,"&(' $+' $' &-#'' 8#,' ")&' 2$!&' #8' &4&'' &$,+

#6' +D/E #' # H O C2#6' Z 3"' A I/' 3"D/E' "2F #4' C/ " O 3DG' GE!' /' Z 3"' ' #D' 3"D/' 2/ O DG' /' G E4 I EDG!' 4 I 736' .' AD7 #6

' ,' '(

0

+D/E #E 2EE2 I73 #4 ' .. HD/E O6 A /HD / 7D#HD O26 OD 3/2#E^ C /3DG

' (@& " 81,")&, &'$!"&(6)$" 8$'? 5&,+#' +)$-- @? #,!& #, < #-&'!& $++$1-"6 ,&+ +"6 #22#+&6 %#-&+"6) '(&,6 #, #@+",1!" $'? 88 !&,'#8 ")& ,%?6 $4?6 #, $, '&+6 @& '. (1-? &%2-#?&(8#, ")& 5,&4&>" C' #8 %1..- '.6 $'(#' 1-- 5$?6 #, $'? 88 !&,#8 1+"#%+ #, 9! +&6 #, #")&, 5&,+#' $!" '. ') + #, ")&, (#, ++ +"$'!&6 #, (1-? &%2-#?&(8#, ")& 5,&4&'" #' #8 %1..- '.6 ' ")& (1& 9&N !1" #' #8) + #, ")&, 88 !& #, 31"?6 +1!) 5&,+#'6 @& '. ")&,&#8 !#'4 !"&(6 +)$-- @& ",$'+2#,"&(8#, &4&' &$,+6 #, +&'"&'!&("# @& %2, +#'&(' $'? #1+& #8 #,,&!" #' #, #%%#' H$#-6 $'(:&2" "#)$,($@#1,6 8#, $'? &,,$ '#" &9!&&('.),&& &$,+6 $" ")& 3 +!,&" #' #8 ")& #1," @&8#,& *)#%6 ")& 88&'(&, +)$-- @& ", &($'(!#'4 !"&($+ $8#,&+$ (

(0 02#G #4 ' .. HD/E . DEED7E # 3"D D/F HD 026 "217 3"D / DEED7E # " /D Z 3" I3 OD #4 7 2O7D 3 '2#6 H3 # . / E ' G #4

' (@& " 81,")&, &'$!"&( )$" " +)$-- $'(%$? @& -$*81- "# $'(8#, ")& #%%$'('. 88 !&,8#, ")& %& @& '. #8 $'? <&++&- #, #$" &%2-#?&(8#, ")& 5,&4&'" #' #8 %1..- '. "#)$1- $'? +1!) <&++&- #, #$" 12#' $'? 5$," #8 ")& #$+"+ #8 ")& V' "&(D '.(#%6 #, ")&)#,&+6 $':+6 #, &$!)&+ #8 $'? 4&,6 ,&&:6 #, '-&" #8 ")& +$%&6 X'#" @& '. $ H$,(&' #, 5-&$+1,& H,#1'(6 '/ 5-$!& #,(N '$, -? 1+&(8#, $'? $") '. $!) '& #, $!) '&+6[*) !) +)$-- @& (&&%&(%#+" !#'4&' &' 8#, ")$" 51,2#+&6 $'("# %##, $'? +1!) <&++&- #, #$" #' +1!) 5$," #8 ")& $8#,&+$ (#$+"+6)#,&+6 $':+6 $'(&$!)&+ @&-#* .)B*$"&, $,:6 $'(#?&, *) !) ")& (& 8-#*+ #' #,('$,? !!$+ #'+6 $'("# !#'" '1& +1!) <&++&- #, #$" +# %##,&($+ $8#,&+$ (8#, +1!) %& $+ ")& +$ (#%%$'('. 88 !&, +)$-- (&&%6 '&!&++$,? $'(2,#2&, $'(+1!) #%%$'('. 88 !&,6 #, 5&,+#' #, 5&,+#'+ $!" '. 1'(&,) + 3 ,&!" #'6 +)$-- '#" @& -$@-& "# $'? '(!"%&'"6 !" #'6 #, 1" 8#, +# (# '.6 $'? $*6 "$"1"&6 1+"#%6 #, V+$.& "# ")& !#'",$? '#"* ")+"$'('.

' .. HD/ . Z I#GDG # 3"D D/F HD . 3"D (IE3 OE 13 3" OD C/ ^ F GDG. / 7

' (@& " 81,")&, &'$!"&( )$" ' $-- $+&+ *)&,& $'? 88 !&, #, &$%$' &%2-#?&(" ")& &,4 !& #8 ")& 1+"#%+ #, 9! +& +)$-- @& : --&(6 %$ %&(6 *#1'(&(6 #, ' $'? *$? '>1,&(' ")& (1& 9&!1" #' #8) + 88 !&6 #, 8 $'? 5&,+#' $!" '.) + (6 #, (1-? &%2-#?&(8#, ")& 5,&4&'" #' #8 %1..- '.6 +)$-- @& +# : --&(6 %$ %&(6 *#1'(&(6 #, ' $'? *$? '>1,&(*) -& +# $ ('. +1!) 88 !&, #, &$%$' 6 #, +# &%2-#?&(8#, ")& (%$? @& -$*81- 8#, ")& #%% ++ #'&,+ #8 + $>&+"?;+ 1+"#%+ $'(9! +& ,&+2&!" 4&-? "# %$:& +1!) 5,#4 + #' 8#, ")& 88 !&, #, 5&,+#' %$ %&(@ I#GDG! #, '>1,&($+ $8#,&+$ (6 #, 8#, ")& E (#*+ $'($% - &+ #8 +1!) $+ +)$-- @& : --&(6 $+ ")&? +)$-- @& $1")#, L&($'(&%2#*&,&("# (# @? E$,$'" 8,#%6 ")& #,(.) ,&$+1,&, #, #%% ++ #'&,+ #8 +6 $>&+"?;+ ,&$+1,? 8#, ")& %& @& '.

DEED7E ##G GE ED dDG 0 26OD G/E 3"D (# 0 E E #D/E E"277 G /DH3

<B ' (@& " 81,")&, &'$!"&( )$" $-- <&++&-+ $'(#$"+ $'($-- H##(+ *)$"+#&4&, *) !) +)$--)$4& @&&' +& L&($'(!#'(&%'&(,&$!) #8 $'? $* ,&-$" '. "# ")& 1+"#%+ +)$--B @& (+2#+&(!#'4&' &'"-? %$? @& $8"&, ")& #'(&%'$" #' ")&,&#86 +1!) $''&, $+ ")& #%% ++ #'&,+ #8 + $>&+"?;+ 1+"#%+)$-- (,&!"

7&,+ 8#, (&"$@@.^7 %1..-&,+

< ' (@& " 81,")&, &'$!"&( )$" " +)$-- $'(%$? @& -$*81- 8#, ")& #%% ++ #'&,+ #8 + $>&+"?;+ 1+"#%+6 $'(")&?$,&)&,&@?

B (2CV T

$1")#, L&($'(&%2#*&,&(6 "# $*$,("# $'?   88 !&, #, #")&, 5&,+#'   ) >

(&"$ ' '. $'? 5&,+#' - $@-& "# 3&"&'" #' 1'(&, ") + #, $'? #")&,   !"
,&-$" '. "# ")&   &4&'1& #8   1+"#%+6 "# @& 2$ (12#' ")&   #'4 !" #'
#8 +1!) 5&,+#'6 $'?   &*$,(")&? %$? ") ': 8 " "# (,&!"6 '#" &7+!&&(B
'. ")&   1% #8   *&'"? 5#1'(+ 8#, &$!) 5&,+#'

<   '(@& " 81,")&, &'$!"&(6   )$" " +)$-- $'(%$? @& -$*81- =DZ2/GE 3
8#, ")&   #%% ++#'&,+ #8   + $>&+"?;+   1+"#%+6 $'(")&? $,& '.. HD/E
)&,&@? $1")#, L&(6 "# #,(&, ")& 8#--#* '.   &*$,("# @& 2$ ("# $'?
88 !&, #,   88 !&,+ #, 5&,+#'+ $+ $8#,&+$ (@? *)#+&   &$'+ $'? 2&!1B CD#273 DE 2/D
' $,? 5&'$-"? #,   #%2#+ " #'   + ,&!#4&,&(X")$" + "# +$?6e   '& /DH FD/DG
) ,(5$," #8 ")& 5&'$-"? #,   1% ,&!#4&,&(6 &9!&2"   ' & L1,&+ #8
-: H##(+6 ' *) !) $+& ")&   88 !&,+ %$? ,&!& 4&   '& $-8 ")&
5&'$-"? #,   1% ,&!#4&,&(

<   '(@&   " 81,")&, &'$!"&(   )$"   " +)$-- $'(%$? @&   &*$,(+ "#
-$*81- 8#, ")&   #%% ++#'&,+ #8   + $>&+"?;+   1+"#%+6 $'(")&? $,& '.. HD/E
)&,&@? $1")#, L&(6 "# #,(&, "# @& 2$ (6   ,&+2&!" #8 $'?   & L1,& %$: '.
%$(& 1'(&, ") + #, $'?   !" ,&-$" '. "# ")&   1+"#%+ #, "#   ,$(&
$'($4 .$" #'6 "# ")& 5&,+#' #, 5&,+#'+ %$: '. ")& +$%&6 ")&
8#--#* '.   &*$,(+   X")$" + "# +$?6[

' ")& $+& #8   & L1,&+ #8 2 , "+ #,   #@$!!#]G
8 $-- ")& 5$," &+ !#'!&,'&(' ")&   !" *) !) #!!$+ #'+ ")&
& L1,&6 @& '. $@#4& ")&   .& #8   9"&&'   &$,+6 $,&
(&"$ '&($'(!#'4 !"&(6 ")& *)#-& <$-1& ")&,&#86 +1!)
<$-1& "# @& 8 9&($'(+&""-&(@? ")&   #,(+ #8 ")&   ,&$N
+1,?6 #, @? ")&   #%% ++#'&,+ #8   + $>&+"?;+   1+"#%+6
$+)&,&'B$8"&, (,&!"&(]
8   *# #, %#,& #8 +1!) 5$," &+6 '#" @& '. ")& *)#-&6 $,&
+# (&"$ '&($'(!#'4 !"&(&4&'   .)")+ #8 +1!) <$-1&]
8   '& +1!) 5$,"?6 '#" @& '. ")& *)#-& #8 ")&%6 @1" @& '.
$ &8, '. $'6 + +# (&"$ '&($'(!#'4 !"&(6   ),&&
#1,")+ #8 +1!) <$-1&]
8   '& +1!) 5$,"?6 '#" @& '. ")& *)#-& #8 ")&%6 + (&"$ '&(
$'(!#'4 !"&(6 $'(")& <&++&- #,   &$'+ #8   #'4&?$'!&
+ #, $,& +& L&($'(!#'(&%'&(   ),&&   #1,")+ #8 +1!)
<$-1&]
8   '& +1!) 5$,"?6 '#" @& '. ")& *)#-& #8 ")&%6 '#, @& '.
$ &8, '. $'6 + +# (&"$ '&($'(!#'4 !"&(4&
.)")+ #8 +1!) <$-1&]
8 ")& <&++&- #,   &$'+ #8   #'4&?$'!& + +& L&($'(!#'N
(&%'&(* ")#1" $'? 5&,+#' @& '. (&"$ '&('&   ) ,(
#8 +1!) <$-1&]
8 $-- ")& H##(+ $,& +& L&(6 $'($-- ")& 5$," &+ !#'!&,'&(
$+ $8#,&+$ ($,& +1@+&C1&'"-? !#'4 !"&(!#'+&C1&'!& #8
+1!)   & L1,& $'(@? ")&   9&," #' #8 ")&   & L#,+6   '&
$-8 #8 +1!) <$-1&]
8 ")& H##(+ #'-? $,& +& L&('&   .)")6 #, +1!) #")&,
5$," $+ ")&   #%% ++#'&,+ #8 ")&   1+"#%+ +)$-- ") ':
2,#2&,6 '#" &9!&('.   '&   #1,") #8 +1!) <$-1&]
' ")& $+& #8   & L1,&+ #8 #")&, H##(+6 '#"   -:+]G
8 ")& <&++&- #, #")&,   &$'+ #8   #'4&?$'!& + #, $,&
+& L&($'(!#'(&%'&(6 #, 8 $'? 5&,+#' + 2,#+&!1"&("#
#'4 !"#'

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#'4 !"#'' #'' $!!#1'" #8' ")&' +$%&' '&' $-8' #8' ")&'
5,#(1!&6' &9!-1+ 4&' #8' ")&' 31" &+]
8' ")&' H##(+' #'-?' '&' #1,")' #8' +1!)' 5,#(1!&']
2' ")&' $+&' #8' ($%$.&(' #@$!!#6' '1886' #,'#")&,' H##(+' (&+",#?&(6'
+1!)' &*$,(' $+' ")&' #,(+' #8' ")&' ,&$+1,?' #,' ")&' #%% +N
+#'&,+' #8' +' $>&+"?;+' 1+"#%+' %$?' ") ' :' 2,#2&,' "#' (,&!"6'
'#" &9!&&('.'$' # &"?' #8' ")&' 31"?' 2$?$@-&' #'' +1!)' H##(+'
'' !$+&' ")&' +$%&')$(' @&&'' +#-(' 8#,' #%&' #'+1%2"#'']
'' ")&' $+&' #8' & L1,&+' #8' -:' H##(+6' ")&' *)#-&' <$-1&' #8' +1!)'
H##(+6' &9!-1+ 4&' #8' ")&' 31"?' ")&,&#'']
'' ")&' $+&' #8' & L1,&+' #8' <&++&-+' $'(' #$"+'
8' +#-(6' $' # &"?' #8' ")&' 5,#(1!&']
8' "$:&'' '"#' ")&' 51@- !' &,4 !&' #,' @,#:&'' 126' $' # &"?' #8'
")&' <$-1&]
'' ")&' $+&' #8' & L1,&+' #8' $""-&' $'(' $,, $.&+]G
'' $--' $+&+6'),&&' #1,")+' #8' ")&' 5,#(1!&' #8' ")&' $-&7

7D' /D2EI/6' < ' 5,#4 (&(' $-*$?+6' $'(' @&' '' 81,")&,' &'$C"&(6')$" ")&'
/' (OOE^ <$-1&' #8' 2 ,"+' $'(' #@$!!#' +& L&(' $+' $8#,&+$ (' +)$--' '' $--' $+&+' @&'
E #D/E' 3 ' (&&%&(' $'(' "$:&'' "#' @&' +1!)' $+' ")&' #,(+' #8' ")&' ,&$+1,?' #,' ")&'
.&' 3"D' 27ID' #%% ++#'&,+' #8' +' $>&+"?;+' 1+"#%+' %$?' ") ' :' 8" "#' 89 ")&'
.' C / 3E' 2#G' +$%&' J 'H$--#'' ' '5#1'(' E& .)"6' 8#,' ")&' 51,2#+&' #8' ,&*$,(N
O2HH N '.' ")&' +$(' 88 !&,' $+' $8#,&+$ (' $'(' ")$" $--' ")&' @&8#,&B%&'" #'&('
=DZ2/GE' 3 ' &*$,(+' +)$--' @&' 2$(' +1@>&!" "#' $ 3&(1!"#'' #8' &'' 5#1'(+'
OD' EIO5DH3' 3 ' *' #'' $!!#1'" #8' $*')$,.&+' $'(' #")&,' 92&'!&+
*DGIH3 #

77' =DZ2/GE' ' '(' @&' '' 81,")&,' &'$!"&(' ')$" &4&,?' +1!)' &*$,(6' #,'
2#G' DdI/DE' 5$," #,')$,&' #8' $'?' +1!)' & L1,&' #,' #8' ")&' <$-1&' ")&,&#8' $+' +)$--'
C262O7D' 3 ' @&' 2$?$@-&' "#' $'?' 88 !&,' #,' 88 !&,+6' #'B!#%% ++#'&(' 88 !&,+6'
'..HD/E' .' 5&"?' 88 !&,+6' &$%&'6' #,' 5, 4$"&+' #8' +' $>&+"?;+' ,%?6J $4?6' #,'
/O6!')2F6!' $, '&+6' #,' $!" '.' 1'(&,' ")&' ,(&,+' #8' ")&' #,(' .)' (% ,$-' #,'
/' B2/ #DE' #%% ++#'&,+' #8' ")&' (% ,$-"?6' +)$--' @&' (4 (&(' $'(' (+", @1"&(' ''
3 ' OD' /D4I^ +1!)' 5,#2#," #'+6' $'(' $!!#,('.' "#' +1!)' 1-&+6' &.1-$" #'+6' $'('
723DG' O6' > E' ,(&,+6' $+' +' $>&+"?' +)$--6' @?' +' ,(&,' #,' ,(&,+' '' #1'! -6' #,'
B25DE36aE' @?' +' #?$-' 5,#!-$%$" #'' '' ")$" &)$-86' @&' 2-&$+&(' "#' (,&!" $'('
'/GD/E' # $22# '"
(I#H7

' '(' @&' '' 81,")&,' &'$!"&(6')$" '' +)$--' @&' -$*81-' 8#,' ")&'
(OO EE #^ #%% ++#'&,+' #8' +' $>&+"?;+' 1+"#%+' #,' 9! +&' ,&+2&!" 4&-?6' $'('
D/E' O26' G E^ ")&?' $,&')&,&@?' $1")#, L&(6' '' !$+&' #8' $'?' & L1,&' #8' <&++&-+6' #$"+6'
3/ OI3D' #,' H##(+6' #,' #8' ")&' 22,&)&'+#'' #8' $'?' 5$," &+6' 1'(&,' ") +' #,' $'?'
'..HD/E' #")&,' !" ,&-$" '.' "#' ")&' 1+"#%+6' "#' (,&!" ")&' 3 +", @1" #'' #8' ")&'
"2/DE' .' & L#,;+')$,&' #8' +1!)' <&++&-+6' #$"+6' #,' H##(+6' #,' #8' $'?' 5&'$-" &+'
DdI/DE' # #,' &*$,(+' ")$" %$?' @&' ,&!#4&,&(' #" $!!#1'" #8' $'?' & L1,&6' '' +1!)'
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+)$--' @&' (&&%&('"#)$4&' @&&' +188 ! &'"-?' +&,4&(' $'(' 12#') +6)&,6
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")&' 9$% '$" #' #8' ")&' $""&,6 $'(6 12#'' (1&' 5,##8' ")$" ")&' +$ ('
H##(+' $,&' - $@-&' "# #,8& "1,&' 1'(&,' ") +' #,' $'?' !" ,&-$" '.' "# ")&'
1+"#%+6 %$?' !#'(&%' ")&' +$ (' H##(+

< ' ' (

! @

+D/E #E GD '
32 #DG . /'
3"D' ' . .D#HDE
"D/D #' O D#^
3 #DG!' #'
(#F H3 #'
3 ' . /.D 3'
UU<!!' /' .'
D2.2/ #4'
B D#' 3 ' OD'
ED#3' #3 ' 3"D'
? 2F6' . /'
A FD' - D2/E

< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' "' +)$--' $'(' %$?' @&' -$*81-' 8#,' $'?' *# #,' %#,&' R1+" !&+' #8' ")&' 5&$!&' @&8#,&' *)#%' $'?' 5&,+#'' - $@-&' "#' @&' (&"$ '&(6' $'(' *)# +)$--')$4&' @&&'' (&"$ '&(6' 8#,' $'?' 88&'"&' $.$ '+"' ") +' #,' $'?' #")&,' !"' ,&-$" ' . ' "#' ")&' 1+"#%+6' +)$--' @&' @,#1.)"6' &")&,' #'' ")&' #'8&++ #'' #8' +1!)' 5&,+#'' #8' +1!)' 88&'!&6' #,' #'' 5,##8' ")&,&#8' 12#'' ")&' $")+' #8' '&' #,' %#,&' !,&(@-&' E "'&++' #,' E "'&++&+6' "#' !#'4 !"' +1!)' 5&,+#'' #8' $'?' +1!)' 88&'!&' $'(' &4&,?' +1!)' 5&,+#'' +#' !#'4 !"&(' $+' $8#,&+$ (' +)$--6' %%&($"&-?' 12#'' +1!)' #'4 !" #'6' 2$?' '"#' ")&' $'(+' #8' +1!)' R1+" !&+6' 8#,' ")&' V+&' #8' +' $>&+"?6' ")&' 5&'$-"?' #8' '&')1'(,&(' 5#1'(+6' * ")#1"' $'?' " .$" #'' *)$"&4&,6' 8#,' $'?' +1!)' 88&'!&' #8' *) !)')&' +)$--' @&' +#' !#'4 !"&(' $+' $8#,&+$ (' ' #,' '' (&8$1-"' ")&,&#8' ")&' +$ (' R1+" !&+' +)$--' $'(' ")&?' $,&')&,&@?' ,&+2&!" 4&-?' $1")#, L&(' $'(' ,&C1 ,&(6' @?' E $,N ,$'"' 1'(&,' ")& ,' $'(+' $'(' &$-+6' "#' !#%%' "+1!)' 5&,+#'' +#' !#'4 !"&(' $+' $8#,&+$ (6' $'(' %$: ' . ' +1!)' 3&8$1-"' $+' $8#,&+$ (6' "#' $'?' H$#-' #,' 5, +#'6' ")&,&' "#' ,&%$ '' 1'"' -' +1!)' 5&'$-"?' +)$--' @&' 2$ (' 2,#4 (&(' ")$"' 8' ")&' 5&,+#'' !#'4 !"&(' #8' $'?' +1!)' 88&'!&' #8' 88&'!&+' +)$--' @&' $' &$8$, ' . ' $'6' $'(' 8" $'(' $@-&' "#' +&,4&' +' $>&+"?' '' +' 4-' &,4 !&6' $'(' +)$--' '#"' 2,#4&' ")$"')&' +' '#"' $ 1@>&!"' #8' +' $>&+"?6' "' +)$--' $'(' %$?' @&' -$*81-' 8#,' $'?' +1!)' R1+" !&+6' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' '' - &1' #8' +1!)' 5&'$-"?6' @?' E $,"$2"' 1'(&,' ")& ,' $'(+' $'(' &$-+6' "#' #,(&,' $'?' 88 !&,' #8' ")&' ,,$?6' $4?6' #,' $, '&+6' (1-?' &%2-#?&(' 8#,' ")&' 5,&4&'" #'' #8' %1. . - ' .6' $'(' #'' 51--' 5$?6' #,' $'?' 88 !&,' #8' 1+"#%+' #,' 9! +&6' "#' !$, ,?' #,' !#'4&?6' #,' !$1+&' "#' @&' !$, , &(' #,' !#'4&?&(6' +1!)' 5&,+#'' #'' @#$,(' #8' $'?' #8' +' $>&+"?;+') 2+6' '' #,(&,' "#') +' +&,4 ' . ' +' $>&+"?' '' +' 4-' &,4 !&' 8#,' ")&' &,%' #8' 4&' &$,+' ' $'(' 8' +1!)' 5&,+#'"' +-$ ' $Q $'?' %&' * ") '' ")$"' 5&, #(' @?' $'?' &$'+' &+!$2&' #,' (&+&,"' 8,#%' +1!)' 1+"#(?' #,' &,4 !&' ,&+2&!" 4&-?6')&' +)$--' @&' - $@-&' $"' $'?' %&' #,' %&+' $8"&,N *$,(+' "#' @&' $.$ '' $,,&+"&(' $'(' (&"$ '&(' @?' $'?' 88 !&,' #8' ")&' 1+N "#%+6' #,' $'?' #")&,' 5&,+#'6' $'(' (&- 4&,&(' #4&,' $+' $8#,&+$ (' "#' !#%N 2-&"&') +' &,4 !&' #8' 4&' &$,+] 5,#4 (&(' $-+#6' ")$"' 8' "+)$--' @&' %$(&' "#' $22&$,' "#' $'?' +1!)' R1+" !&+' ")$"' !#'4&' &'' ,,$' .&%&'' !$''#' @&' %$(&' $"' ")&' %&' #8' ")&' #'4 !" #'' #8' ")&' +$ (' 5$,"?' 8#,' %%&($"&-?' !$, ,?' '' #,' !#'4&? ' . ' +1!)' &8, ' . ' $'' +#' #'4 !"&(' $+' $8#,&+$ (' #'' @#$,(' $'?' #8' +' $>&+"?;+') 2+6' '' #,(&,' "#' +&,4&' +' $>&+"?6' "+)$--' $'(' %$?' @&' -$*81-' 8#,' $'?' +1!)' R1+" !&+' "#' !#%%' $'?' +1!)' &$8$, ' . ' $'' +#' !#'4 !"&(' $+' $8#,&+$ (' "#' $'?' 5, +#'' #,' H$#-6' ")&,&' "#' ,&%$ '' '' +$8&' 1+"#(?' 8#,' $'?' 5&, #(' '#"' '#"' '&' #"')6' '' #,(&,' ")$"' %&' %$?' @&' . 4&'' "#' %$:&' ,,$' .&%&'"+' 8#,' +#' !#'4&? ' . ' +1!)' &8, ' . ' $'' #'' @#$,(' $'?' #8' +' $>&+"?;+') 2+' $+' $8#,&+$ (] 5,#4 (&(' $-+#6' ")$"' ")&' #%% +N + #'&,+' #8' +' $>&+"?;+' ,&$+1,?6' #,' $'?'),&&' #,' %#,&' #8' ")&%6' +)$--')$4&' 81--' 5#*&,' $'(' 1")#, "?' "#' ,&%% ' #,' % " .$"&' $'?' +1!)' 5&'$-"?6' 51' +)%&'"6' #,' &,4 !&' $+' $8#,&+$ (6' *)&")&,' ")&' 5$," &+' +)$--' @&' &8, ' . ' &'' #,' #")&,* +&

' . .D#GD/E
DEH2C #4' O26'
OD' 242 #'
2//DE3DG!' 2#G'
GD7 FD/DG' FD/'
3 ' H O C7D3D'
3"D /' D/F HD'
.'A FD' - D2/E'
. ' ' . .D#GD/'
H2## 3' OD'
O O DG 23D76'
H #FD6DG' #'
O 2/G' " C!'
"D' O26' OD'
H O O 33DG'
. /' ' #D'
B #3"!

/D2E I /6' O26'
/D O 3' /' O 3 ^
423D' +D#2736!'
+ I # E" O D#3!'
/' D/F HD

, I E3 HDE' O26'
2 O D#G' #. /^
O23 #E'
Z"D/D' ' . .D#^
GD/E' 2/D'
H"2/4DG' 2E'
D2.2/ #4'
B D#!' O I3

< ' '(' @&' "' 81,")&,' &'$!"&(')$"' 8' $'?' 5&,+#'' +)$--' @&' 2,#!&&(&(' $.$ '+"' 1'(&,' ") +' #,' $'?' #")&,' !"' ,&-$" ' . ' "#' ")&' 1+N "#%+' #,' 9! +&6' $'(' ")&' '8#,%$" #'' &9) @ "&(' $.$ '+"' +1!)' 5&,+#'' +)$--' !)$, .&') %' $+' @&' ' . ' $' &$8$, ' . ' $'6' $'(' 8" $'(' $@-&' "#7&,4&' +' $>&+"?' '' +' 4-' &,4 !&6' $'(' "+)$--' $22&$,' "#' ")&' R1+" !&+' @&8#,&' *)#%' +1!)' 5&,+#'' +' @,#1.)"' ")$"')&' + .1 -"?' #8' ")&' 88&'!&' -#' * ")

L' ' K' B ' ' (2C V T

* ")' *) !)')&' +' !)$,.&(6' @1"' ")$"')&' +' '#"' 8"' 8#,' +' $>&+"?;+' 4-' &,4 !&6' ")$"' ")&'' $'(' '' +1!)' $+&' '' +)$--' @&' -$*81-' 8#,' +1!)' >1+" !&+6' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' "#' $%&'(' +1!)' '8#,%$"#'' $!!#,('.-?6' $'(' "#' !#'4 !"' +1!)' 5&,+#'' '' ")&' 5&'$-"?' #5 8 &')1'B' (,&(' 5#1'(+6' $+' 8' 2,#!&&(&(' $.$ '+'' $+' '#"' @& '.' $' &$8$, '.' $''#,' 8"' 8#,' +' $>&+"?;+' 4-' &,4 !&

! ' > E B 25DE36a&E' D/F HD!'

< ' '(' @&' "' 81,")&,' &'$!"&(')$"' 8'$'?' 5&,+#'' +#' !#'B' 4 !"&(' $+' $' &$8$, '.' $'6' $'(' !$,, &('#'' @#$,(' $'?' #8' +' $>&+"?;+') 2+' #8' E$,6' +)$--' #'' 9$% '$"#'' @?' $'?' 1,.&#'' #,' 1,.&#'+' #8' +' $>&+"?;+' $4?6' *") '' '&' #'")' $8"&,' @& '.' +#' !$,, &(' #'' @#$,(6' @&' (&&%&(' "#' @&' 1'8 "6' $'(' +)$--' @&' ,&81+&('#'' ")$"' !!#1''' "#' @&' ,&!& 4&(' '"#' +' $>&+"?;+' &,4 !&6' +1!)' 5&,+#'' +)$--6' $+' +##'' $+' !#'4&' &'"6' @&' !#'4&?&(' @&8#,&' $'?' R1+" !&' #8' ")&' 5&$!&6' $'(' 12#'' 5,##8' ")$"')&')$+' @&&'' ,&81+&(' "#' @&' ,&!& 4&(' #'' @#$,(' $'?' #8' +' $>&+"?;+') 2+' $+' 1'8 "' 8#,' +' $>&+"?;+' &,4 !&6' +1!)' R1+" !&' +)$--' $'(')&' +')&,&@?' $1")#, L&(' $'(',&C1 ,&(' "#' !$--' 12#'' ")&' +$ (' 5&,+#'' "#' 2$?' ")&' 5&'$-"?' #8' '&')1'(,&(' 5#1'(+6' * ")#1"')&$, '.' $'?' 4 (&'!&' #")&,' ")$'' +1!)' 5,##8' $+' -$+"' $8#,&+$ (' ' $'(' '' (&8$1-"' #8' %%&($"&' 5$?%&''' #8' ")&' +$%&' '"#' ")&' $'(+' #8' ")&' +$ (' R1+" !&6' 8#,' ")&' V+&' #8' +' $>&+"?6' "#' !#%%' '' ")&' +$ (' 5&,+#'' "#' $'?' H$#-' #,' 5, +#'6' ")&,&' "#' ,&%$' '' 1'"-' +1!)' 5&'$-"?' +)$--' @&' 2$ (] 5,#4 (&(' $-*$?+6' ")$"' '#' 5&,+#'' +#' !#'4 !"&(' $+' $8#,&+$ (>' $'(' #,(&,&(' "#' +&,4&' #'' @#$,(' $'?' #8' +' $>&+"?;+') 2+6' +)$--' @&' +&''' $*$?' 8,#%' ")&' V' "&(' D '.(#%' #'' @#$,(' #8' $'?' +1!)') 2' '' $' -&++' %&' ")$'' '&' #'")' 8,#%' ")&' 3$"&' #8' +1!)' #'4 !"#'

.' #' &^ 20 #23 #' .'+D/E #E' H #F H3DG!' 2#G' ED#3' #' O 2/G' > E' B 25DE36a&E' " CE!' 3ODF' E"27' OD'. I#G' I#. 3!' E I H"' +D/E #E' 3 ' OD' 242 #' H #^ FD6DG' OD. /D' B 24 E3/23DE!' 2#G' H #F H3DG' #' 37 D' +D#2736' .' UU !' 2#G' #' GD.2173' .' +26 0 D#3' ED#3' 3 ' 2 7

< ' '(' @&' "' 81,")&,' &'$!"&(')$"' *)&,&' $'?' 88&'!&' $.$ '+'' ") +' #,' $'?' #")&,' !"' ,&-$" '.' "#' ")&' 1+"#%+' +)$--' @&' !#%B' % ""&(' '' $'?' "?6' #,#1.)6' @&,"?6' 3 4 + #'6' ,$'!) +&6' #,' #*'' #,2#,$"&6' $+' *&--' $'?' R1+" !&+' #8' ")&' +$ (' "?6' #,#1.)6' @&,"?6 3 4 + #'6' ,$'!) +&6' #,' #*'' #,2#,$"&6' $+' $'?' R1+" !&+' #8' $'?' #1'"?' '' *) !)' +1!)' "?6' #,#1.)6' @&,"?6' 3 4 + #'6' ,$'!) +&6' #,' #*'' #,2#,$"&' +' + "1$"&(6' +)$--')$4&' R1, +(!"#'' "#')&$,' $'(' M(&"&,% '&' 12#'' ")&' +$%&

E3 , I / E ' G H3 #' # ^ / I4"E

' '(' @&' "' 81,")&,' &'$!"&(')$"' *)&,&' ")&' ""&'N ($'!&' #8' *#' $. +",$"&+')$4 '.' R1, +(!"#'' '' ")&' #1'"?' *)&,&' ")&' 88&'!&' +' !#%% ""&(' !$''#"' @&' !#'4&' &'"-?' #@"$ '&(6' '' +)$--' @&' -$*81-' 8#,' $' $. +",$"&' #8' $'?' $(>#' '.' #1'"?6' *")' '&' $. +N ",$"&' #8' ")&' #1'"?' '' *) !)' ")&' 88&'!&' *$+' !#%% ""&(6' "#')&$,' $'(' (&"&,% '&' $'?' '8#,%$"#'' &9) @ "&(' @&8#,&' ")&%6' $'(' "#')$4&' ")&' +$%&' 5#*&,+' $'(' 1")#, "&+' '' $--' ,&+2&!"+6' $+' "#' $'?' 5,#!&&('.')$(' 1'(&,' ") +' #,' $'?' #")&,' !"' ,&-$" '.' "#' ")&' 1+"#%+6' $+' 8' ")&?' *&,&' @#")' $. +",$"&+' 8#,' ")&' #1'"?' '' *) !)' ")&' 88&'!&' *$+' !#%% ""&(

' B 24 E3/23D' .' 2#' 2G5 #^ #4' (I#36' Z 3"' '#D' 7' 3"D' (I#36' Z"D/D' '..D#HD' H O O 33DG!' O 26' "D2/' #7 / O 23 #E

' '(' @&' "' 81,")&,' &'$!"&(6')$"' '#' E, "' #8' &,"#,$,' +)$--' ++1&' 8,#%6' +' $>&+"?;+' #1,"' #8' D '.;+' &'!)' "#' ,&%#4&' $'?' 5,#!&&('.+' @&8#,&' $'?' R1+" !&' #,' R1+" !&+' #8' ")&' 5&$!&' 1'(&,' $'?' !"' 8#,' ")&' 5,&4&'"#'' #8' %1..-'.' #,' ,&-$" '.' "#' ")&' 1+"#%+6' '#,' +)$--' $'?' E, "' #8' $@&$+' #,21+' ++1&' "#' @, '.' 12' ")&' #(?' #8' $'?' 5&,+#'' *)#' +)$--B')$4&' @&&'' !#'4 !"&(' @&8#,&' $'?' R1+" !&' #,' R1+" !&+' #8

@/ 3E' .' (D/3 /2/' 2#G' @/ 3E' .' >2OD2E' (/^ CIE' # 3' 3 ' OD' EEIDG' D&HDC3' #' 2# .. G2F 3!' 2#G

T L' ' K' B ' ' (2C V

!
, IE3 HDE' O26
2OD#G' #^
. / O23 #E!'
@2/ /2#3E' .'
(O O 3^
O D#3!' 2#G'
(#F H3 #E

#8' ")&' 5&$!&' 1' (&,' $' ?' +1!)' !"6' 1' -&++' ")&' 5$,"?' $.$ ' +"' *)#%' +1!)'
5,#!&&(' .' +)$-')$4&' @&&' (,&!"&(6' #,' *)#' +)$-')$4&' @&&' +#' !#'N
4 !"&(6' #,') +' ""#,' &?' #,' .&' "6' +)$-' +"$"&' $' 8- ($4 '
E, " ' .6' "#' @&' (1-?' +*#,' 6' ")&' H,#1' (+' #8' @>&!" #' "#' +1!)' 5,#N
!&&(' .+' #,' #' 4 !" #' 6' $' (' ")$" 12#' ")&' &"1, ' "#' +1!)' E, ' #8'
&," #,$, ' #,' $@&$+' #,21+' '#' @>&!" #' +)$-' @&' "$:&' #,' !#'N
+ (&,&(' #")&,' ")$' +1!)' $+' +)$-')$4&' @&&' +"$"&(' ' +1!)' 88 ($4 '>
$' (' ")$" ' +)$-' @&' -$*81-' 8#,' $' ?' R1+" !&' #,' R1+" !&+' #8' ")&' 5&$!&6'
$' (' ")&?' $,&')&,&@?' ,&C1 ,&(6' "#' $%&' (' $' ?' '8#,%$" #' 6' #' 4 !" #' 6'
#,' E$,,$' "#8' #%% "%&' 8#,' $' ?' 88&' !&' 1' (&,' $' ?' +1!)' !' $"
$' ?' %&6' *)&")&,' @&8#,&' #,' $8"&,' #' 4 !" #'

#. / O23 #E'
2#G' (#F H'
h7V&7 #,%
6= "#7 6, q'
. .DH3' #' ")&'
H"DG I7D'

' ' (' @&' "' 81,")&,' &' $!"&(')$" $-' '8#,%$" #' +' @&8#,&'
R1+" !&+' #8' ")&' 5&$!&' 8#,' $' ?' 88&' !&+' !#%% ""&(' $.$ ' +"' ") +' #,'
#")&,' !' ,&-$" ' .' "#' ")&' 1+"#%+6' $' (' $-' #' 4 !" #' +' 8#,' +1!)'
88&' !&+6' $' (' E$,,$' "+' #8' R1+" !&+' #8' ")&' 5&$!&' 8#1' (&(' 12#' +1!)'
#' 4 !" #' +6' +)$-' @&' (,$* ' ,&+2&!" 4&-?' ")&' #,%' #,' "#' ")&' 88&!"
' ")&' !)&(1-&' "#' ") +' !' $' '&9&(

#. / O23 #E!'
H' 3 ' OD'
GDD O DG' F27 G'
.'3"D' ' . .D#HD'
E' ED3' . /3"
#' 3"D' @ /GE'
.'3"D' H3

' 5,#4 (&(' $-*$?+6' $' (' @&' "' (&!-$,&(' $' (' &' $!"&(6')$" &4&,?'
'8#,%$" #' 8#,' $' ?' 5&' $-"?' #,' #,8& "1,&6' $' (' &4&,?' #' 4 !" #' #,'
E$,,$' "#8' #%% "%&' 8#,' $' ?' 5&' $-"?6' +)$-')&' (&!' &(' 4$- (' $' ('
+188 ! &' ' *) !)' ")&' 88&' !&' 8#,' *) !)' +1!)' 5&' $-"?' +)$-')$4&'
@&&' '8- !"&(6' #,' ")&' $1+&' #8' +1!)' #,8& "1,&6' +' +&' 8#,")' ")&'
E#, (+' #8' ") +' !"

+ ZD/E' .'
, IE3 HDE' "#
@4H#4 '#,+
#,' 3&&%+"&,+'
.' ")&' E7D' .'
B2#'

(' ' (' @&' "' 81,")&,' &' $!"&(')$" $-' ")&' 5#*&,+' 4&+"&(' '
$' ?' R1+" !&+' #,' R1+" !&' #8' ")&' 5&$!&' @?' 4 ,"1&' #8' ") +' !' +)$-' @&'
+$%&' $,&')&,&@?' 4&+"&(' ' $' (' %$?' @&' &9&,! +&(6' '
' ' @?' $' ?' H#4&,' #,6' 3&21"?' H#4&,' #,6' #A3&&%+"&,' #8' ")&' & +'
' ' +#' 8$,' $+' ,&.$,(+' 88&' !&+' !#%% ""&(' $.$ ' +"' #,' 5&' $-" &+'
#,' #,8& "1,&+' ' !1,,&(' @?' ") +' #,' $' ?' #")&,' !' ,&-$" ' .' "#' ")&'
1+"#%+

+D#273 DE' 2#G'
A /.D 3 I /DE' 3 '
OD' C2 G' 3 '
(O O E^
E #D/E' .'
(IE3 OE' /'
&H ED!' 2#G'
2CC7 DG' 2E'
3"D' 2Z'
G /DH3E

< ' ' (' @&' "' 81,")&,' &' $!"&(')$" $-' 5&' $-" &+' $' (' #,N
8& "1,&+' *) !)' %$?' @&' ,&!#4&,&(' @&8#,&' $' ?' R1+" !&+' #8' ")&' 5&$!&'
1' (&,' ") +' #,' $' ?' #")&,' !' ,&-$" ' .' "#' ")&' 1+"#%+' #,' 9! +&6' #'
$' ?' 5,#+&!1" #' @?' ,(&,' #8' ")&' #%% ++ #' &,+' #8' 1+"#%+6' +)$-' @&'
2$ (' "#' ")&' #%% ++ #' &,+' #8' +' $>&+"?;+' 1+"#%+6' $' (' #' $' ?'
5,#+&!1" #' @?' ,(&,' #8' ")&' #%% ++ #' &,+' #8' 9! +&' +)$-' @&' 2$ ('
"#' ")&' #%% ++ #' &,+' #8' +' $>&+"?;+' 9! +&6' #,' "#' ")&' 5&,+#'
$22# ' "&(' @?' ")&%' ,&+2&!" 4&-?' "#' ,&!& 4&' ")&' +$%&' $' (' +1!)'
5&' $-" &+' $' (' #,8& "1,&+' +)$-' @&' $22- &(' @?' ")&' +$ (' #%% ++ #' &,+'
,&+2&!" 4&-?' +1!)' $' '&,' $+' ")&' $*' (,&!"+6' $' ?' ") ' .' !#' "$ '&('
' $" !' 2$++&(' ")&') ,(' &$,' #8' ")&' & . ' #8' D ' .' ")&'

H Q ' OO '

#1,")6' ' "1-&(' & ' * *
! ' ' &' >
' * ' > ')$' &+'
N ' 6 ' ' $' ?' #")&,' !' '#*' 8#,!&' #,'
)&,&$8"&,' "#' @&' %$(&6' "#' ")&' !#' ",$,?' ' $' ?* +&' '#"* ")+"$' (' .

(2C 2E' O26'
5&,+# 7+1&('

< ' ' (' @&' "' 81,")&,' &' $!"&(')$" *)&' &4&,' $' ?' 5&' $-"?'
$8#,&+$ (' @?' '8#,%$" #' $.$ ' +"' $' ?' 2&,+#' 6' 2

$'?#8' +' $>&+"?;+' #1,"+' #8' &!#,(' $" / * '#,'$" ' " '#,' & ;
$" . " ' $' $2 $+' %$?' ")&,&12#'' ++1&' $+' ")&' 8 ,+" 5,#!&++6' +2&! 8? '.' ")&' %#1'" #8' ")&' 5&'$-"?' +1&(' 8#, ' $'(' +1!)' 5&,+#'' $.$ '+" *)#%' +1!)' $2 $+' +)$--' ++1&' +)$--' @&' #@- .&(' "#' `. 4&' +188 B' ! &'" $-'#,' &!1, "?6' @?' '$"1,$-B@#,'' 1@>&!"+' #,' 3&' L&'+6' "#' ")&' 5&,+#'' #,' 5&,+#'+' "#' *)#%' +1!)' $2 $+' +)$--' @&' (,&!"&(6' "#' $22&$,' '' ")&' #1,"#1" #8' *) !)' +1!)' $2 $+' +)$--' ++1&' $" ")&' 3$?' #8' ")&' &"1,'' #8' +1!)' E, "6' "#' $'+*&,' +1!)' 1" $'(' 5,#+&!1" #'6' $'(' +)$--' - :&* +&' $" ")&' %&' #8' +1!)' $22&$, '.' . 4&' +188 ! &'" $-'#,' &!1, "?6' @?' +1!)' 5&,+#'+' $+' $8#,&+$ (6' '' ")&' +$ (' #1,"6' "#' $'+*&,' $'(' 2$?' $--' ")&' #,8& "1,&+' $'(' 5&'$-"&+' '!1,,&(' 8#,' +1!)' 88&'!&' #,' 88&'!&+' '' !$+&')&6' +)&6' #,' ")&?' +)$--' @&' !#'4 !"&(' ")&,&#86' #,' "#' ? &-(') +6')&,6' #,' ")& ,' #(?' #,' #(&+' "#' 5, +#'

I#GD/' 3" E'
H3!' *)#' 2/D'
3 ' 4 FD' 2 7!'

< ' '(' @&' " 81,")&,' &'$!"&(')$" 8' $'?' 5&,+#'' $.$ '+" *)#%' $' $2 $+' +)$--' ++1&' #1" #8' $'?' #8' +' $>&+"?;+' #1,"+' #8' &!#,(' $+' $8#,&+$ (' +)$--' @&' $,,&+"&(' 12#'' +1!)' $2 $+6' $'(' "$:&'' "#' 5, +#'' 8#,' E $'" #8' +188 ! &'" $-6' $' #2?' #8' ")&' '8#,%$" #'' &9) @ "&(' $.$ '+" +1!)' 5&,+#'' +)$--' @&' +&,4&(' 12#'') %' #,')&,' '' H$#-6' #,' (&- 4&,&(' "#' ")&' H$#-&,6' D&&2&,6' #,' 1,' :&?' #8' ")&' 5, +#'' '' *) !)' +1!)' 5&,+#'' +)$--' @&' !#'8 '&(' $'(' 8' +1!)' 5&,+#'' +)$--' '&.-&!" #,' ,&81+&' "#' $22&$,' #,' 2-&$(' "#' ")&' +$ (' '8#,%$" #'' 8#,' ")&' 2$!&' #8' *&'"?' 3$?+6' R1(.%&'" +)$--' @&' &'"&,&(' @?' 3 &8$1-"' $'(' '' !$+&' R1(.%&'" +)$--' @&' #@"$ '&(' $.$ '+" $'?' +1!)' 5&,+#'' #,' 5&,+#'+' @?' 3&8$1-"6' <&,(!"6' #,' #")&,* +&6' $'(' +1!)' 5&,+#'' #,' 5&,+#'+' +)$--' '#" 2$?' ")&' 1%' ,&!#4&,&(' $.$ '+") %6')&,6' #,' ")&%' 8#,') +6')&,6' #,' ")& ,' 88&'!&6' 9&!1" #'' +)$--' @&' ")&,&12#'' $*$,(&(' $'(' ++1&(A' '#" #'-?' $.$ '+" ")&' #(?' #,' #(&+' #8' ")&' 5&,+#'' #,' 5&,+#'+' +#' '' 5, +#'' $+' $8#,&+$ (6' @1" $.$ '+" $--' ")&' &$--' $'(' 5&,+#'$--' +"$"&+' #8' +1!)' 5&,+#'' #,' 5&,+#'+6' 8#,' +1!)' 1%' #,' 1%+' #8' #'&?' +#' $+' $8#,&+$ (' ,&!#4&,&(' $.$ '+") %6')&,6' #,' ")&%

+D/E #E' #
2 7 # 3' 2C^
CD2/ #4' /'
C7D2G #4' 3 '
3"D' #. /02^
3 #!' , IG4^
OD#3' 026' OD'
D#3D/DG' O6'
*D.2I73

< ' '(' @&' " 81,")&,' &'$!"&(')$" '' !$+&' $'?' 5&,+#'' $,,&+"&(' $'(' %2, +#'&(' @?' 4 ,"1&' #8' $'?' E, " #8' $2 $+' $+' $8#,&B' +$ (' +)$--' %$:&' 88 ($4 " @&8#,&' ")&' R1(.&' #,' R1(.&+' #8' ")&' #1," *)&,&' ")&' '8#,%$" #'' +)$--' @&' @,#1.)"6' #,' @&8#,&' $'?' #")&,' 5&,+#'' !#%% ++ #'&(' "#' "$:&' 88 ($4 "+' '' +1!)' #1,"6' ")$")&' #,' +)&' +' '#" *#,")6' #4&,' $'(' $@#4&') +' #,')&,' E &$, '.' 22$,&-6' ")&' 1%' #8' 4&' 5#1'(+6' X*) !)' +$ (' 88 ($4 " ")&' +$ ('R1(.&' #,'R1(.&+' #8' +1!)' #1,"6' $'(' +1!)' 5&,+#'' +#' !#%% ++ #'&(6' +' $'(' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' +#' "#' "$:&6' [' $'(' +1!)' 5&,+#'' +)$--' ")&,&12#'' 2&" "#'' +1!)' #1," "#' (&8&'(') %+&-8' #,')&,+&-8' $.$ '+" +1!)' '8#,%$" #'' ' * ' ' ")$" ")&'' ")&' R1(.&' #,' R1(.&+' #8' +1!)' #1," +)$--6' $!!#,('.' "#' ")& ,' 3 +!,&" #'6' $(%" +1!)' 5&,+#'' "#' (&8&'(') %+&-8' #,')&,+&-8' $.$ '+" +1!)' '8#,%$" #'' '' ")&' +$%&' $''&,' $'(' * ")' ")&' +$%&' 5, 4 -&.&+' $+' ")&' R1(.&+' #8' +1!)' #1," $,&' @?' $*' (,&!"&(' $'(' $1")#, L&(' "#' $(%" 2##,' 1@>&!"+' "#' !#%%&'!&' !" #'+' 8#,' ")&' &!#4&,?' #8' ")&' .)"+' ' $'(' 8#,' ")$" '(' $'(' 51,2#+&' " +)$--' @&' -$*81-' 8#,' ")&' R1(.&+' #8' +1!)' #1,"+' "#' $++ .'' #1'+&-' -&$, '&(' '' ")&' $*6' $'(' "#' $22# '" $'' ""#,'&?' $'(' -&,:' #8' +1!)' #1,"6' "#' $(4 +&' $'(' !$,,?' #'' $'?' -&.$-' 3&8&'!&' ")$" +1!)' 5&,+#'' !$'' %$:&' $.$ '+" +1!)' !"#'' #,' '8#,%$" #'6' $'(' *) !)' +$ (' #1'+&-6' ""#,'&?6' $'(' -&,:6' +#' $++ .'&(' $'(' $22# '"&(6' +' $'('$,&')&,&@?' A ,&C1 ,&(

+D/E #E' # 3'
+("+ '7='
. /02' C2I '
2&, +'

T T L B ' ' (2C ' V

! ' ,&C1 ,&(' "# . 4&) + $ ' (' ") & ,' (4 !& $ ' (' ++ +"$ ' !& "# +1!)' 5&,+# ' 6
$ ' (' "# (# ") & ,' 31" &+6 * ")#1" && #,' & * $,(

"D/ ..' 3 ' 4/2#3 ECDH 27 @2//2#3 # @/ 3 .' (2C 2E OD #4 #G /EDG O6 3"D 7 H 3 /E .' 3"D (IE^ 3 OE

< ' ' (@& " 81,")&,' &'$!"&(6)$" *)&,& $'? E, "#8 $2 $+ #,' #")&,' 5,#!&++ +)$-' ++1& #1" #8 $'? #1,"6 (,&!"&(' "# $'? - &, 886 $?#,6 $ - 886 #,' #")&,' 5&,+#'')$4 ' .' ")& 9&!1" #'' #8 5,#!&++ '' $'? #1'"?6 "?6 #,' @&,"?6 $.$ '+" $'? 5&,+#'' *7)# +)$-' @& .1 -"? #8 $'? 88&'!& *)$"+#&4&,' $.$ '+" ") + #,' $'? !" ,&-$" ' .' "# ")& 1+"#%+6 &4&,? +1!)')&, 886 $?#,6 #,' $ - 886 $'(' #")&,' 5&,+#'')$4 ' .' 9&!1" #'' #8 5,#!&++ $+ $8#,&+$ (6 $'(' ")& ,' $'(' &4&,? #8 ")& ,' V'(&,')&, 88+6 3&21" &+6 $'(' #")&,' 5&,+#'+ $!" ' .' 8#,' ")&%' '' ")& +$ (' 88 !& $'(' 88 !&+ ,&+2&!" 4&-?6 +)$-' $'('$,&)&,&@? &'># '&(' $'(' ,&C1 ,&(6 12#'' ")& &C1&+" #,' 22- !$" #'' #8 ")& #- ! "#,' 8#,' ")& 1+"#%+6 X+1!)' &C1&+" "# @& '' E, " ' .6 $'(' '(#,+&(' 12#'' ")& $!:' #8 ")& +$ (' 5,#!&++6 $'(' + . '&(' @? +1!)' #- ! "#,' * ")') + $%&6 $'(' ((" #'' #8 #- ! "#,' 8#,' ")& 1+"#%+6e "# .,$'" $ +2&! $- E$,,$'" #,' E$,,$'"+6 "# +1!)' 5&,+#'' #,' 5&,+#'+ $+ +)$-' @& '$%&(' "# "@& '' @? +1!)' #- ! "#,6 8#,' ")& $22,&)&'(' .' +1!)' 88&'(&,' #,' 88&'(&,+ ' #,' '' (&8$1-" ")&,&#8 &4&,? +1!)')&, 886 $?#,6 $ - 886 V'(&,')&, 886 $'(' #")&,' 5&,+#'' $!" ' .' '' ")& +$ (' 88 !& #,' 88 !&+ ,&+2&!" 4&-? +)$-' @& +1@>&!" $'(' - $@-& "# +1!)' 5,#!&++ #8 #'"&%2"6 5 '&+6 %&,! $%&'"+6 5&'$-" &+6 $'(' #,8& "1,&+ $+ ")&? #,' $'? #8 ")&%' $,& '#*' @? $'? $*6 1+"#%6 #,' V+$.& - $@-& "# '' !$+& #8 ,&81+ ' .' #,' '&.-&!" ' .' "# &9&!1"&' ")& - :& 5,#!&++ *)&,& ")& 3&8&'($'"% .)")$4& @&&'' "$:&'' ")&,&12#'' '' ")& !#%%#'' $'(6 1+1$- &")#(' #8 2,#!&&(' .

"D/ ..' #^ GDO# . DG ./ O' EH2CDE # (2EDE Z"D/D @2/^ /2#3E 2/D 4/2#3DG 23 3"D =D\ I DE3 .'2 7 H 3 /' . /'3"D (IE^ 3 OE!' 2#G 2 7D/E /D\ I /DG 3 ' /DHD FD ' ..D#GD/E

' ' (@& " 81,")&,' &'$!"&(')$" $-' $'(' &4&,? +1!)')&, 8"=6 $?#,6 $ - 886 V'(&,')&, 886 $'(' #")&,' 5&,+#'+ +# .,$'" ' .' #,' %$: ' .' #1" +1!)' +2&! $- E$,,$'" $+ $8#,&+$ (6 +)$-' @&6 $'(' ")&? $,&)&,&@? +$4&(')$,%-&++ $'(' '(&%' 8 &('$.$ '+" + $>&+"?6 + & ,+ $'(' 1!!&++#,+6 $'(' $.$ '+" $-' $'(' &4&,? #")&,' 5&,+#'' #,' 5&,+#'+ *)#%+#&4&,6 #8 $'(' 8,#%' $-' +!$2&+ #8 $'? 5&,+#'' #,' 5&,N +#'+ *)# +)$-' #,' %$?@& "$:&'' @?'4 ,"1& #8 $'? +1!)' E$,,$'" $+ $8#,&+$ (6 *) !)' +)$-' #,' %$?)$22&'' 8,#%' ")& %& #8 "$: ' .' +1!)' 88&'(&,' #,' 88&'(&,+ " -')&6 +)&6 #,' ")&? +)$-' @& !#%% ""&(' "# ")& 2,#2&,' H$#-' #,' 5, +#'6 #,' #88&,&(' $'(' "&'(&,&(' "# ")& H$#-B:&&2&,' #,'#")&,' 5&,+#'')$4 ' .')$, .& #8 +1!)' H$#-' #,' 5, +#'6 X*)# +)&,&@? &'># '&(' $'(' ,&C1 ,&(' "# ,&!& 4& &4&,? +1!)' 5&,+#'' #,' 5&,+#'+ +# $22,&)&'(&(' $+ $8#,&+$ (6 $'(' . 4& $ &!& 2" 8#,') +6)&,6 #,' ")& ,' #(? #,' #(&+6[$'(' #8 $'(' 8,#%' $-' !" #'+6 5,#+&!1" #'+6 5,#N !&++ #8 #'"&%2"6 $'(' #")&,' 5,#!&&(' .+ 8#,' #,' @? ,&$+#'' #8 +1!)' +!$2&6 $'? $*6 1+"#%6 #,' V+$.& "# ")& !#'",$,? '#"* ")+"$'(' .

) ' (72 O' /' CCD2/2#HD 3 ' OD D#3D/DG 3 ' 2#6 #. /^ O23 # . /' 3"DA /.D 3I/D .'ED dDG GE!' I#7DEE # 3"D)2OD .'3"D ' Z#D/!' 2#G ' 23"' O2GD 3 ' 3"D +/ CD/36

' ' (@& " 81,")&,' &'$!"&(6)$" '# -$%' +)$-' @& 2&,N % ""&(' "# @& &'"&,&(' "#6 $'(' '# 22&$,$'!& +)$-' @& 2&,% ""&(' "# @& &'"&,&(' "#6 $'? '8#,%$" #'' 8 -&(' 8#,' ")& #,8& "1,& #8 $'? <&++&-6 #$"6 #,' H##(+ +& L&(' 8#,' $'? $1+& #8 #,8& "1,&6 $'(' ,&"1,'&(' '"# $'? #8 + $>&+"?;+ #1,"+ #8 &!#,(' '' ")& V' "&(' D ' .(#%6 1'-&++ +1!)' -$ %' #,' 22&$,$'!& + &'"&,&(' '' ")& ",1& $'(' ,&$-' $%& #,' $%&+ #8 ")& * '&,' #,' * '&,+6 5,#2, &"#,' #,' 5,#2, &"#,+ #8 +1!)' <&++&-6 #$"6 #,' H##(+6 (&+!, @ ' .' ")& 5-$!& #8 &+ (&'!& $'(' ")& 1+ '&++'#,' 5,#8&++ #'' #86 +1!)' 5&,+#'' #,' 5&,+#'+ > $'(' 8 +1!)
A 5&,+#'

5&,+#' ' #,' 5&,+#' + +)$--' ,&+ (&' $"' ' . " ' #,' ' " ' #,' ! '
* ") ' ")&' @&," &+' ")&,&#8' $")' +)$--' @&' %$(&' @?') %6')&,6' #,'
")&%' @&8#,&' '&' #8' ")&' R1(.&+' #8' ")&' #1," ' "#' *) !)' ")&' +$ ('
<&++&-6' #$"6' #,' H##(+' $,&' ,&"1, '&(6' #,' ' ' *) !)' +1!)' '8#,%$" #' ' +'
8 -&(6' ")$"' ")&' +$ (' <&++&-6' #$"6' #,' H##(+' *$+' #,' *&,&' ,&$--?' $' ('
",1-?' ")&' 5,#2&,"?' #8') %6')&,6' #,' ")&%' $"' ")&' %&' #8' +1!)' & L1,&'
@1"' 8' +1!)' 5&,+#' ' #,' 5&,+#' + +)$--' '#"' @&' ,&+ (&' ' ' ' . =
" ' #,' ' " ' #,' ")&' @&," &+' ")&,&#8' ")&' ' $' (' ' +1!)' $+&'
$")' +)$--' @&' %$(&' ' - :&' $' '&,' @?' ")&' .&' ' #,' ""#, '&?' #,'
#- ! "#,' @?' *)#%' +1!)' -$ %' #,' 22&$,$' !&' +)$--' @&' &' "&,&(6' ")$"'
)&')$+' 81--' 5#*&,' $' (' -&.$-' 1")#, "?' $' (' 3 ,&!" #' + 8,#%' +1!)'
* '&,+' #,' 5,#2, &"#,' "#' &' "&,' +1!)' -$ %' #,' 22&$,$' !&6' $' (' ")$"'
"#' ")&' @&+' #8') + D'#*-&(.&' $' (' &- &8' +1!)' <&++&-6' #$"6' #,'
H##(+' *&,&6' $"' ")&' %&' #8' ")&' & L1,&' ")&,&#86' " ' ' $' (",1-?'
")&' ,&$-' 5,#2&,"?' #8' ")&' 5&,+#' ' #,' 5&,+#' + ' *)#+&' $%&' #,' $%&+'
+1!)' -$ %' #,' 22&$,$' !&' + &' "&,&(' $' (' #' ' $ -1,&' ")&,&#86' ")&'
<&++&-6' #$"6' #,' H##(+' +)$--' @&' $@+#-1"&-?' !#' (&%' &(6' $' ('R1(.%&' '
+)$--' @&' &' "&,&(' ")&,&#' ' @?' 3&8$1-"6' $!!#,(' . "#' ")&' 1+1$-' &")#('
#8' 5,#!&&(' .+' #8' ")&' #1,"6' ' ")&' +$%&' $' '&,' $+' 8' '#' -$ %' #,'
22&$,$' !&')$(' @&&' ' &' "&,&(' ")&,&"#' ' $' (' &4&,?' 5&,+#' ' *)#' +)$--'
@&' !#'4 !"&(' #8' %$: ' .' #,' "$: ' .' $' 8$-+&' $")' "#' $' ?' #8' ")&' $!"+'
)&,&' 'B@&8#,&' (,&!"&(' #,' ,&C1 ,&(' "#' @&' + * #,' ' +)$--' @&' (&&%&('
.1 -"?' #8' 5&,>1,?6' $' (' +)$--' @&' - $@-&' "#' ")&' 5$ '+' $' (' 5&'$-" &+' "#'
*) !)' 5&,+#' + $,&' - $@-&' 8#,' * -81-' $' (' !#,,12"' 5&,>1,?

' '(' @&' ' 81,")&,' &'$!"&(6')$"' 12#' ' ")&' '",?' #8' $' ?' -$ %' ' Z#D/E' "#'
"#' $' ?' #$"' #,' <&++&-6' #,' "#' $' ?' H##(+6' +& L&(' 8#,' $' ?' $1+&' #8' 4 FD' DH I / 36'
#,8& "1,&6' #,' #8' $' ?' 22&$,$' !&' "#' $' ?' '8#,%$" #' ' 8 -&(' 8#,' +1!)' #+"+'
#,8& "1,&6' ")&' 5&,+#' ' #,' 5&,+#' + ' *)#' +)$--' & ' "&,' ")&' -$ %' #,' 2B' O6' %OD' H72 O'
2&$,$' !&' $+' ")&' * '&,' #,' 5,#2, &"#,' ")&,&#8' X ' !$+&' +1!)' -$ %$' ' /' CCD2/ '
+)$--' ,&+ (&' ' ")&' V' "&(' D ' . (#%[' +)$--' @&' @#1' (6' * ")' *#' #")&,'
+188 ! &' ' 1,&" &+6' ' ")&' 5&'$-"?' #8' '&')1' (,&(' 5#1' (+6' "#' $'+ * &,'
$' (' 2$?' ")&' #+"+' #! !$+ #'&(' @?' +1!)' -$ %' ' /' 22&$,$' !&' ' $' (' 8'
+1!)' * '&,' #,' 5,#2, &"#,' +)$--' '#"' ,&+ (&' ' ")&' V' "&(' D ' . (#%6'
")&' ' $' (' ' +1!)' $+&' ")&' ""#, '&?' #,' #- ! "#,' @?' *)#+&' 3 ,&!" #' '
+1!)' -$ %' #,' 22&$,$' !&' +)$--' @&' &' "&,&(' +)$--' ' - :&' $' '&,' @&'
@#1' (6' * ")' *#' #")&,' +188 ! &' ' 1,&" &+6' ' ")&' - :&' 5&'$-"?6' "#'
$'+ * &,' $' (' 2$?' ")&' #+"+' #! !$+ #'&(' @?' +1!)' -$ %' #,' 22&$,$' !&

' '(' @&' ' 81,")&,' &'$!"&(')$"' ' !$+&' $' ?' '8#,%$" #' ' #,' .' I 3'
1 ' +)$--' @&' !#%%&' !&(' #,' @,#1.)' "#' , $-' #' ' $! !#1' ' #8' ")&' O/ I4"3' #'
& L1,&' #8' $' ?' <&++&-6' #$"6' #,' H##(+6' &,!)$' (L&+6' #,' #%%#N 2HH I#3' .'
(" &+' *)$"+#&4&,6' #,' $' ?' #,+&+' #,' #")&,' ' %$-+6' #,' $' ?' $,, $.&6' D dI /D' 2#G'
+& L&(' $+' 8#,8& "&(' @?") + #,' $' ?' !' ,&-$" ' . ' "#' ")&' 1+"#%+6' *)&,& ' 3"D' , I G4D'
$' <&,(!' +)$--' @&' 8#1' (' 8#,' ")&' -$ %$' ' ")&,&#86' $' (' ' +)$--' $22&$,' E"27' HD/3 .6'
"#' ")&' R1(.&' #,' #1,' @&8#,&' *)#%' ")&' +$%&' +)$--')$4&' @&&' ' ", &(' 3"23' 3"D/D'
")$"' ")&,&' *$+' $' 2,#@$@-&' $1+&' #8' & L1,&6' +1!)' R1(.&' #,' #1,' Z2E' C/ O2O7D'
+)$--' !&," 8?' ' ")&' &!#,(' ")$"' ")&,&' *$+' +1!)' 2,#@$@-&' $1+&6' $' (' (2IEDf +72 #^
' +1!)' $+&' ")&' 5&,+#' ' *)#' %$(&' +1!)' & L1,&' +)$--' '#"' @&' - $@-&' 3 . '3 ' "2FD'
"#' $' ?' !" #' 6' '(!"%&' "6' #,' #")&,' 1 ' #,' 5,#+&!1" #' ' #' ' $! !#1' ' Z CD#HD'
#8' +1!)' & L1,&' $' (' ' !$+&' $' ?' !" #' 6' '(!"%&' "6' #,' #")&,' 1 ' *2O24DEf
#,' 5,#+&!1" #' ' +)$--' @&' !#%%&' !&(' $' (' @,#1.)' "#' , $-' $.$ '+' $' ?' 2#G' *D.D#'
5&,+#' ' #,' 5&,+#' + ' *)$"+#&4&,' #' ' $! !#1' ' #8' $' ?' +1!)' & L1,&' $+' G2#3O#DG# 3'
$8#,&+$ (6 O /D' 3"2#'
' #D' " 77 #4

! ' $8#,&+$ (6 *)&,& '' $ <&,(!" +)$-- @& . 4&'' $.$ '+'" ")& 3&8&' ($'" #,' 3&8&' ($'"+6 8' ")& #1," #,' R1(.& @&8#,& *)#% +1!)' '8#,%$" #'' #,' 1 " +)$--)$4& @&&'' ", &(' +)$--)$4& !&," 8 &('' ")& +$ (' &!#,(' ")$" ")&,& `*$+ $ 2,#@$@-& $1+& 8#,' +1!)' & L1,&6 ")&'' ")& 5-$ '" 886 @&+ (&+' ")&) ' .+ +& L&(6 #,' ")& <$-1& ")&,&#86 +)$-- '#" @& &'" "-&(' "# $@#4& *#B2&'!& 3$%$.&+6 '#,' "# $'? #+"+ #8 1 "6 '#,' +)$--")& 3&8&' ($'" '' +1!)' 5,#+&!1" #'' @& 8 '&(' $@#4& '&) -- '.

) ' +/ HDEE 3 ' OD' EIDG I3' 242 #E3 2#6 ' .. HD/ 02] #4 D d I /D! I#3 7 ' #D' (27D#G2/ B #3''' #D&3 2.3D/) 3 HD' 4 FD#

! % ' '(' @& " 81,")&,' &'$!"&(6)$" '# E , " +)$-- @& +1&(' #1" $.$ '+"6 '#,' $ #2? #8 $'? 5,#!&++ +&,4&(' 12#'6 $'? 8- !&,' #8 ")& ,%?6 $4?6 $, '&+6 1+"#%+6 #,' 9! +&6 #,' $.$ '+" $'? 5&,+#'' $!" '.' 1'(&,' ")& 3 ,&!" #'' #8 ")& #%% ++ #'&,+ #8 +' $>&+"?7+ 1+"#%+6 8#,' $'?") '.' (#'& '' ")& 9&!1" #'' #8 #,' @? ,&$+#'' #8') +' 88 !&6 1'" - '& $-&'($,' #'")' '&9" $8"&,' #" !& '' E , " '.' +)$--)$4& @&&'' (&- 4&,&(' "#) %6 #,' -&8" $") +' 1+1$- 5-$!& #8 @#(&6 @? ")& ""#, '&? #,' .&'" 8#,' ")& 5$,"? *)# '"&' (+' "# +1& #1" +1!)' E , " #,' 5,#!&++ $+ $8#,&+$ (6 '' *) !)' #" !& +)$-- @& !-&$,-? $'(' &92- ! "-? !#'"$ '&(' ")& $1+& #8 !"#'6 ")& $%& $'(' 5-$!& #8 @#(& #8")& 5&,+#'' *)# +"# @, '.' +1!)' !"#'6 $'(' ")& $%& $'(' 5-$!& #8 @#(& #8")& ""#, '&? #,' .&'' $'(' ")$" $ && #8 *&'"?) -- '.+ +)$-- @& 2$ (' 8#,' ")& 2,&2$, '.' #,' +&,4 '.' #8 &4&,? +1!)' #" !&6 $'(' '# %#,&

) ' F GD#HD' 3 OD2GG I HDG' !#'"7'8('' 3"D') 3 HD!'

<' 5,#4 (&(' $-*$?+6 $'(' @& " 81,")&,' &'$!"&(')$" '# 5-$ '" 88 >'' $'? $+& *)&,& $'' !"#'' +)$-- @& .,#1'(&(' #'' $'? +1!)' !" 3&8&' ($'" +)$-- @& 2&,% ""&(' "# 2,#(1!& $'? 4 (&'!& #8")& $1+& #8 +1!)' !"#'6 &9!&2" +1!)' $+ +)$-- @& !#'"$ '&(' '' ")& #" !& "# @& . 4&'' $+ $8#,&+$ (6 #,' +)$-- ,&!& 4& $'? <&,(!" $.$ '+" +1!)' 88 !&,' #,' 5&,+#'6 1'-&++)& +)$-- 2,#4& #'' ")& , $- #8 +1!)' !"#'' ")$" +1!)' #" !& *$+ . 4&'' $'(' '' (&8$1-" #8 +1!)' 5,##86 ")& 3&8&' ($'" '' +1!)' !"#'' +)$-- ,&!& 4& $ <&,(!" $'(' #+"+ $+ $8#,&+$ (

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<' '(' @& " 81,")&,' &'$!"&(')$" " +)$-- $'(' %$? @& -$*81- "# $'(' 8#,' $'? +1!)' 88 !&,' #,' #")&,' 5&,+#'' "# *)#% +1!)' #" !& +)$--)$4& @&&'' . 4&'' $+ $8#,&+$ (6 $" $'? %& * ") '' '& $-&'($,' #'")' $8"&,' +1!)' #" !& +)$--)$4& @&&'' . 4&'6 "# "&'(&,' %&'(+' "# ")& 5$,"? !#%2-$ ' '.6 #,' "#) +6)&,6 #,' ")& ,' .&'" #,' ""#, '&?B6 $'(' '' !$+& ")& +$%& +' '#" $!!&2"&(' "# 2-&$(' +1!)' &'(&,' '' @$,' "# $'? !"#'' "# @& @,#1.)" $.$ '+") % .,#1'(&(' #'' +1!)' E , " #,' 5,#!&++6 "#.&")&,' * ")' ")& 5-&$ #8 #" H1 -"?6 $'(' #")&,' 5-&$+6 * ")' &$4& #8")& #1," ' $'(' 86 12#'' ++1& ># '&(' ")&,&#'6 ")& R1,? +)$-- 8 '(' ")& %&'(+' "# "&'(&,(' "#)$4& @&&'' +188 ! &'"6 ")$" ")&'' ")&? +)$-- . 4& $ <&,(!" 8#,' ")& 3&8&' ($'" $'(' '' +1!)' $+&6 #,' '' !$+& ")& 5-$ '" 88 +)$-- @&!#%& '#'+1 "&(6 #,' (+!#'" '1&) +6)&,6 #,' ")& ,' !"#'6 #,' '' !$+& R1(.%&'" +)$-- @& . 4&'' 8#,' +1!)' 3&8&' ($'" 12#'' 3&%1,,&,6 ")&'' +1!)' 3&8&' ($'" +)$-- @& &'"-&(' "# ")& - :& #+"+ $+)& *#1-(')$4& @&&'' &'"-&(' "# '' !$+&)&)$(' 2-&$(&(' ")& H&'&,$- ++1& #'-?' @1" 86 12#'' ++1& ># '&(6 ")& R1,? +)$-- 8 '(' ")$" '# %&'(+ *&,& "&'(&,(6 #,' ")$" ")& +$%& *&,& '#" +188 ! &'"6 #,' +)$-- 8 '(' $.$ '+" ")& 3&8&' ($'" '' +1!)' #")&,' 5-&$ #,' 5-&$+6 ")&'' ")&? +)$-- . 4& $ <&,(!" 8#,' ")& 5-$ '" 886 $'(' +1!)' 3$%$.&+ $+ ")&? +)$-- ") '.' 2,#2&,6 "#.&")&,' * ")') +6)&,6 #,' ")& ,' #+"+ #8 1 "

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$'(' %$?' @&' -$*81-' 8#,') %6' @?' &$4&' #8' ")&' #1,"' *)&,&' +1.)' !"#'' OD#GE!' O26'
+)$--' @&' @,#1.)"6' $"' $'?' %&' @&8#,&' ")&' , $-' #8' ")&' +$ (' !"#'6' "#'
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@,#1.)"' #,' !#%%&'!&(' * ") '' 9' #'")+' '&9"' $8"&,' ")&' $1+&' #8' 5% #3 ' #D&3'
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",&(' '' ")&' #1'"?' #,' 5-$!&' *)&,&' ")&' $!"+' *&,&' !#%%' ""&(6' $'(' .' H3 #' "2E'
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+1!)' 5&,+#'' '' ")&' +$ (' #1,"' 8#,' +1!)' 88&'!&6' '' +)$--' $'(' %$?' @&' #4' ' ..D#GD/E'
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) %' #,' +#%&' #")&,' R1(.&' #8' ")&' +$%&' #1,"6' #,' @&8#,&' +#%&' #'&' #8' OD#3' /' #^
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$'(' '' !$+&' $'?' +1!)' 5&,+#'' +)$--' '&.-&!"' #,' ,&81+&' "#' @&!#%&' @#1'(') D47DH3 #4' 3 '
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'' <$!$" #'' ' $'(' ")&' &!#.' L$'!&' "#' @&' ")&,&12#'' "$:&'' +)$--' @&'
,&"1,'&(' $'(' 8 -&(' '' ")&' +$ (' #1,"6' $'(' +)$--' !#'"' '1&' '' 8#,!&' 1'"-'
+1!)' 5&,+#'' +)$--')$4&' @&&'' $!C1 ""&(' #8' +1!)' 88&'!&6' #,' '' !$+&' #8'
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#,(&,&(' @?' ")&' #1,"' "#' @&' (+!)$,.&(' $'(' ")&' ")$"' *)&,&' $'?' 5&,+#'6' #G H3O D#3E'
&' ")&,' @?' 4 ,"1&' #8' +1!)' E$,,$'"' #8' #%%' "%&'"' $8#,&+$ (6' #,' @?' /' #. /O2^
4 ,"1&' 3 #E' O26' OD

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ED/FDG O6 3"D
2 7D/! 2#G
. ' ..D#GD/
#D47DH3 3 '
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3"D +/ ED^
H I3 /' 026
D#3D/ +7D2 .'
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+$ (#1,"6 + '#* (&"$ '&(#,'+)$--)&,&$8"&,' @& !#%% ""&("# $'(
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")& +$ (#1," "# +1!)' '(!"%&'" #,' '8#,%$" #'6 " +)$-- @& -$*81-
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2-&$(&(#" H1 -"?6 $!!#,('.' "# ")& 1+1$- #1,+& #8 ")& +$ (#V,">
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3"D +2/36 E
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'8#,%$" #' #,' '(!"%&'"6 ")$" ")& 5,#+&!1"#,' #8 +1!)' '8#,%$" #'
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.'3"D +2/36
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%$>' @&6' "' +)$--' @&' -$*81-' 8#,' ")&' 5,#+&!1"#,' #8' +1!)' '8#,%$" #'' #,' !
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#8' ")&' 3&+!, 2" #'')&,& 'B$8"&,' %&'" #'&(6' X")$"' +' "#' +$?6[,: '+' #8'
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'#'+6' @,#1.)" #$+"* +&' '"#' ")&' 5#," #8' ")&' +$ (' "?6' $'(' *) !)' #G #' 2/D'
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< ' '(' @&' "' 81,")&,'&'$!"&(')$" '#) 2 +)$--' @&' $(% ""&(' "# @&' $) 2 #8 $'? 2$," !1-$,' #1'",?6 1'-&++ +)&' @&' #8")&' 1 -" #8 +1!)' #1'",? ' #,')$4& @&&'' %$(&' 5, L&' #8 E $,' "# +1!)' #1'",? ' ')$4& @&&'' 8#,8& "&(' "# +1!)' #1'",? 1'(&,'$'? $*' #8 ")&' +$%&6 %$(&' 8#,' ")&' 5,&4&'" #'' #8 ")&' -$4&' ,$(&6 $'(' !#'(&%'&(' $+ 1!)' 5, L&' #,' #,8& "1,&' @? $!#%2&"&'' #1," #8 +1!)' #1'",? ' #,' @&' (' 1 -" X'#")$4 '.' @&&'' $ 5, L&' #8 E $,' 8,#%' (' 1@>&!"+ "# $'? #")&,' #,& .'' #1'",?[' '#,' 1'-&++ +)&' @&' '$4 .$"&(' @? $ $+"&,' *)# +$ 1@>&!" #8 +1!)' #,& .'' #1'",?6 $'(' @? $,&*' #8 *)#%'),&& #1,")+ $" -&$+" $,&' 1@>&!"+ #8 +1!)' #1'",? ' '#,'1'-&++ +)&' @&' *)#--? #*'&(' @? 1@>&!"+ #8 +1!)' #1'",? 1+1$--? ,&+ ('.' ")&,& '6 #,' 1'(&,' ")&' 3#% ' #'' ")&,&#8] 5,#4 (&(' $-*$?+6 ")$" ")&' #1'",? #8 &4&,?) 2 +)$--' @&' (&&%&(' "# '!-1(&' $--' 5-$!&+ *) !)' $,&' 1'(&,' ")&' +$%& 3#% ' #'' $+ ")&' 5-$!&' "# *) !)' +1!)') 2 @&-#'.+

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< ' '(' @&' "' 81,")&,'&'$!"&(')$" '# 5&,+#'' +)$--' @&' C1$- 8 &(' "# @&' $ $+"&,' #8 $ (') 26 #,' "# @&' $ (' &$%$'' * ") '' ")&' &$' '.' #8 ") + !"6 &9!&2" ")&' '$"1,$-B@#,'' 1@>&!"+ #8 + $>&+"?6 #,' 5&,+#'+ '$"1,$- L&(' @? $'? !" #8 5$,- $%&'"6 #,' %$(&' 3&' L&'+ @? &""&,+ #8 3&' L$" #'' #,' &9!&2" 5&,+#'+ *)#)$4& @&!#%&' (' 1@>&!"+ @? 4 ,"1&' #8 #'C1&+" #,' &++ #'' #8 +#%&' '&*-? $!C1 ,&(' #1'",?6 $'(' *)# +)$--')$4& "$:&'' ")&' $")' #8 --&N . $'!&' "# + $>&+"?6 #,' ")&' $")' #8 (&- "? ,&C1 ,&(' @? ")&' ,&$"? #,' $2 "1-$" #'' @? *) !)' +1!)' '&*-? $!C1 ,&(' #1'",? !$%&' '"# + $>&+"?;+ 5#++&++ #'+' #,' 5&,+#'+ *)# +)$--')$4& +&,4&(' #'' @#$,(' $'? #8 + $>&+"?;+) 2+ #8 E $,' '' %&' #8 E $,' 8#,' ")&' 2$!&' #8),&& &$,+] 5,#4 (&(' $-*$?+6 ")$" ")&' $" 4&+ #8 5-$!&+ * ") '' ")&' % "+ #8 ")&' . ' ' #%2$'?;+)$,"&,6 $-")#1.)' 1'(&,' (' 3#% ' #'6 +)$--' '#" ' V2#'' ")&' H,#1'(' #8 @& '.' +1!)' $" 4&+6 @& (&&%&(' "# @&' (' &$%&'] 5,#4 (&(' $-*$?+6 ")$" &4&,?) 2 X&9!&2") 2+ ,&C1 ,&(' "# @&' *)#--? '$4 .$"&(' @? (' &$%&'[*) !)' +)$--' @&' '$4 .$"&(' @? '&' (' &$%$'6 8 $ (') 26 #,' '&' &$%$'' #8")&' #1'",? #8 +1!)') 26 8 $ #,' &$.'') 26 8#,' &4&,? *&'"? #'+ #8")&' 1,")&' #8 +1!)') 26 +)$--' @&' (&&%&(' "# @&' (1-? '$4 .$"&(6 $-")#1.)' ")&' 1%@&,' #8 #")&,' &$%&'' +)$--' &9!&&(' '&' #1,")' #8 ")&' *)#-&' ,&*'] 5,#4 (&(' $-*$?+6 ")$") '' .' ' !#'"$ '&(' +)$--' &9"&' (' "# ,&2&$-' #,' $--"&,' ")&' 5,#4 +#'+ #8 $'' !" 2$++&(' '' ")&' #1,")' &$,' #8 ")&' & .'' #8 + $>&+"? D '.' '' ")&' #1,")6 8#,' !#'+#- ($" '. $'(' $%&'('. ")&' $" 4&+ ,&- $" '. "# %&,!)$'" + 22 '. 8#,' !"' ,&+ ")&'. ' #%2$'?;+)$,"&,

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OI3 # 3 3ʿ 2..DH3 DEED7E /D4 E3D/DG I#GD/ C/D^ F IE H3

#,ʿ 88 !&,+ #8 + $>&+"?;+ 1+"#%+ʿ] 5,#4 (&(ʿ $-*$?+6 ")$" '#") '.ʿ 'ʿ") + !"+)$--ʿ &9"&'(ʿ #,ʿ @& !#'+",1&(ʿ "# &9"&'(ʿ "2ʿ $88&!" ")& 5, ? A -&.&+ #8 $'?) 2 #,ʿ <&++&-ʿ *) !)ʿ +)$--ʿ 2, #,ʿ "# ")& #%%&'!&%&'" #8 ") + !")$4& @&&'ʿ ,&. +"&,&(ʿ @? 4 ,"1& #8 $'ʿ !" 2$++&(ʿ 'ʿ ")& 9")ʿ &$,ʿ #8 ")& & .'#8 +-$"& $>&+"? D '.ʿ ʿ")& #1,")6 '" "1-&(ʿ ʿ ʿ ʿ ʿ ʿ ʿ ,"+)ʿ N ,

@"23 " CE 2/D D#3 37DG 3ʿOD /D4 E^ 3D/DG

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BDG 3D//2^ #D2# +2EE 026 OD EEIDG 23 B2732 / O/2732/ . / HD/32 # " CE #76

< ʿ '(ʿ @& " 81,")&,ʿ &'$!"&(ʿ)$" '# ʿ5$++ +)$--ʿ @& ++1&(ʿ 8#,ʿ ")& V+& #8 $'?) 26 $+ @& '.ʿ $) 2 @&-#'. '.ʿ "# ʿ#,ʿ " ʿ&9!&2" +1!)ʿ $+ @& (1-? ,&. +"&,&(ʿ $" ")#+& 5-$!&+ ,&+2&!" 4&-?6 #,ʿ +1!)ʿ $+6 '#" @& '.ʿ &'" "-&(ʿ "# @& +# ,&. +"&,&(6 +)$--ʿ)$4& *)#--? @&-#'.&(6 @&8#,& ")& &'")ʿ 3$? #8 ! " ʿ '& ")#1N +$'(ʿ & .)")1'(,&(ʿ $'("*&'"?B+&4&'6 $'(ʿ +)$--ʿ)$4& !#'" '1&(ʿ *)#--? "# @&-#'.6 "# 5&,+#'+ $!"1$--? ,&+ ('.ʿ $" ")#+& 5-$!&+ ,&+2&!N "4&-?6 $+ ')$@ "$'"+ ")&,&#86 $'(ʿ &'" "-&(ʿ "# @& *'&,+ #8 (ʿ) 2+ ")&,& ,&. +"&,&(6 #,ʿ *)#6 '#" @& '.ʿ +# &'" "-&(6 +)$--ʿ)$4& +# ,&+ (&(ʿ 12*$,(+ #8 8"&&'ʿ &$,+ 2, #,ʿ "# ")& +$ (ʿ &'")ʿ 3$? #8 ! " ʿ '& ")#1+$'(ʿ & .)")1'(,&(ʿ $'(ʿ "*&'"?B+&4&'

A /D 4# =D^ C2 /E # 3 3ʿ D&HDDG UEʿ CD/ #

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#,' $'?' 5&,+#'' #,' 5&,+#'+' 8#,' ")&' V+&' $'(' &'&8' #8' $'?' #,& .'&,6'
+)$--' 21,!)$+&' #,' #")&, * +&' @&!#%&' &'" "-&(' "#' ")&' E)#-&' #,' "#' $'?'
5$," #,')$,&' #8' #,' $'?' '"&,&+"' '' +1!)') 2' #,' <&++&-6' $'(' ")&'
+$%&' +)$--' @&' * ") '' ")&' % "+' #8' $'?' 5#," #8' ' (' #,' #8'
")&' +-$'(+' #8' ' & ' #,' ' #,' #8' ")&' (' #-#' &+6'
5-$'"$" #'+6' +-$'(+6' #,' &,, "#, &+' $8#,&+$ (6' ")&'' $'(' '' +1!)' $+&'
")&' &," 8 !$"&' #8' &. +",?' +)$--6' * ") '' &4&'' 3$?+' $8"&,' +1!)' 51,N
!)$+&' #,' ,$'+8&,' #8' 5,#2&,"?' '' +1!)') 2' #,' <&++&-6' @&' (&- 4&,&(' 12'
"#' ")&' 5&,+#'' #,' 5&,+#'+')&,& 'B@&8#,&' $1")#, L&(' "#' %$:&' &. +",?'
$'(' .,$'"' &," 8 !$"&' #8' &. +",?' $"' +1!)' 5#," #,' 5-$!&' ,&+2&!" 4&-?'
$+' $8#,&+$ (' $'(' 8' +1!)') 2' #,' <&++&-' +)$--' @&' '' $'?' #,& .'' 5#,"
*)&'' +1!)' 51,!)$+&' #,' ,$'+8&,' #8' 5,#2&,"?' +)$--' "$:&' 2-$!&6' ")&''
")$"' ")&' &," 8 !$"&' +)$--' @&' (&- 4&,&(' 12' "#' ")&' (' #'+1-' #,'
#")&,') &8' (' 88 !&,' ,&+ (&'"' $"' #,' '&$,&+"' "#' +1!)' #,& .''
5#,"' #,' 8' +1!)') 2' #,' <&++&-' +)$--' @&' $"' &$' *)&'' +1!)' 51,!)$+&'
#,' ,$'+8&,' #8' 5,#2&,"?' +)$--' "$:&' 2-$!&6' ")&'' ")$"' ")&' &," 8 !$"&'
+)$--' @&' (&- 4&,&(' 12' "#' ")&' (' #'+1-' #,' #")&,') &8' ('
88 !&,' $"' ")&' #,& .'' 5#," #,' 5-$!&' '' #,' $"' *) !)' ")&' $+"&,' #,'
#")&,' 5&,+#'')$4 '.' #,' "$: '.' ")&')$,.&' #,' #%%$'(' #8' +1!)') 2'
#,' <&++&-' +)$--' 8 ,+' $,, 4&' $8"&,' +1!)' 51,!)$+&' #,' ,$'+8&,' #8' 5,#2&,"?'
$"' &$6' %%&($"&-?' $8"&,') +' ,;4$-' $"' +1!)' #,& .'' 5#," @1"' 8'
+1!)' $+"&,' #,' #")&,' 5&,+#'' *)#')$(' ")&' #%%$'(' ")&,&#8' $"' ")&'
%&' #8' +1!)' 51,!)$+&' #,' ,$'+8&,' #8' 5,#2&,"?' $"' &$' +)$--' '#"'
$,, 4&' $"' #,& .'' 5#," @1"' +)$--' $,, 4&' $"' +#%&' 5#," #8' ('
#,' #8' ")&' +-$'(+' #8' & ' #,' ' #,' #8' + $>&+"?;+'
+$ (' #-#' &+6' 5-$'"$" #'+6' +-$'(+6' #,' &,, "#, &+6' ")&'' ")$"' ")&' &,N
" 8 !$"&' +)$--' @&' (&- 4&,&(' 126' '' %$''&,' $8#,&+$ (6' * ") '' #1,"&&''
3$?+' $8"&,' ")&' ,, 4$-' #8' +1!)') 2' #,' <&++&-6' #,' #8' ")&' 5&,+#'' *)#
)$(' ")&' #%%$'(' ")&,&#86' '' $'?' 5#," #8' (' #,' #8' ")&'
+-$'(+' #8' & ' #,' ' #,' #8' $'?' #8' + $>&+"?;+' +$ ('
#-#' &+6' 5-$'"$" #'+6' +-$'(+6' #,' &,, "#, &] 5,#4 (&(' $-*$?+6' ")$"' . " C #&3"D'
8' ' +)$--')$22&'' ")$"' $' ")&' %&' #8' &. +",?' #8' $'?') 2' #,' <&++&-' OD' .' =D^
")&' +$%&' +)$--' @&' $"' $'?' #")&,' 5#," ")$'' ")&' 5#," "#' *) !)' +)&' 4 E3/6' OD' 23
@&-#'.+6' +#' ")$"' ")&' $+"&,' #8' +1!)') 2' #,' <&++&-' !$''#"' $""&'(' $"' 2#6' 3"D/
")&' 5#," #8' &. +",?' "#' >#' '' * ")' ")&' *'&,' #,' *'&,+' '' +1!) = /3' 3"2#
#'(' +8?' ")& 3"23' .' =D

(#G 3 #E
3"23' 3"D' (D/^
3 . H23D' E"27'
OD' E 7D76'
O2GD' IED' .'
. /' 3"D' D/^
F HD' .' 3"D'
DEED7' /'
4 FD#' IC' 3 '
OD' H2#HD77DG'
HD/32
(2EDE

B2E3D/ 026 3"D/D 4 FD #G

#'($+ $8#,&+$ (6 " +)$-- @& -$*81- 8#,) % "# . 4& $ +&2$,$"& #'(6 "# ")& - :& 88&!"6 $" ")& 5#," *)&,& +1!)) 2 #, <&++&- %$? ")&' @&6 $'(")& #--&!"#, $'(#'",#--&, #8 +1!) #")&,5#," +)$-- ",$'+% +1!) #'("# ")& #--&!"#, $'(#'",#--&, #8 ")& 5#," *)&,& +1!)) 2 #, <&++&- + "# @& ,&. +"&,&(6 $'(+1!) #'(6 $'(")& #'($-+# . 4&' @? ")& *'&,#, *'&,+6 +)$-- "#.&")&, @& #8 ")& +$%& 88&!" $.$ '+" ")& $+"&, $'(*'&, #, *'&,+6 #, &")&, #8 ")&%6 $+ 8 ")&?)$(@#1'(")&%+&-4&+ ># '"-? $'(+&4&,$--? ' '& #'(

@"D# B2E3D/ E H"2#4DG #DZ B2E3D/ 3 ' 4 FD E 0 ^ 72/ #G 2#G " E) 2 0 D 3 ' OD #G /EDG # (D/3 . H23D . =D4 E3/6

' '(@& " 81,")&, &'$!"&(')$" *)&' $'(+# #8"&' $+ ")& $+"&, #, #")&, 5&,+#')$4 '. #, "$: ' . ")&)$,.& #, #%%$'(#8 $'?) 2 #, <&++&- ,&. +"&,&(' ' %$' '&,)&,& 'B@&8#,& (,&!"&(' +) - @& !)$'.&(6 ")& $+"&, #, *'&, #8 +1!)) 2 #, <&++&- +)$-- (&- 4&, "# ")& 5&,+#' #, 5&,+#'+)&,& 'B@&8#,& $1")#, L&(' "# %$:& +1!) &N . +",? $'(.,$'" +1!) &," 8 !$"&+ #8 &. +",? $" ")& 5#," *)&,& +1!))$'.& +)$-- "$:& 2-$!& ")& &," 8 !$"& #8 &. +",?6 @&-#' . ' . "# +1!)) 2 #, <&++&-6 *)# +)$-- ")&,&12#' '(#,+& $'(+1@+!, @& $ &%#N ,$'(1%6 #8 +1!))$'.&6 $'(+)$-- 8#,") * "). 4& #" !& #8 ")& +$'"& "# ")& 2,#2&, 88 !&, #8 ")& 5#," #, 5-$!& *)&,& +1!)) 2 #, <&++&- *$+ -$+" ,&. +"&,&(' 21,+1$'" "# ") + !"6 *)# +)$-- - :&* +& %$:& $ &%#,$'(1%6 #8 ")& +$%& ' ")& ##: #8 &. +"&,+ *) !) +)&,&@? (,&!"&(' $'(,&C1 ,&(' @& :&2"6 $'(+)$-- 8#,")*(")'. 4& #" !& ")&,&#8 "# ")& #%%++#'&,+ #8 + $>&+"?;+ 1+"#%+] 5,#4 (&(' $-*$?+6 ")$" @&8#,& ")& $%& #8 +1!) '&* $+"&, +)$-- @& '(#,+&(' #' ")& &," 8 !$"& #8 &. +",?)& +)$-- @& ,&C1 ,&(' "# . 4& $'(+)$-- . 4& $ #'(' ")& - :& 5&'$-" &+ $'('1'(&, ")& +$%& #'("#'+ $+ $,& !#'"$ '&(' ' ")& #'( )&,& 'B@&8#,& ,&C1 ,&(' "# @& . 4&' $" ")& %& #8 &. +",? #8 $'?) 2 #, <&++&-

#GE 7 207D 3 ' E20D * I3 DE . 32 OCE 2E #GE . / (IE3 OE

' '(@& " 81,")&, &'$!"&(')$" $-- #'(+ ,&C1 ,&(' @? ") + !" +)$-- @& - $@-& "# ")& +$%& 31" &+ #8 "$%2+ $+ #'(+ . 4&' 8#, #, ' ,&+2&!" #8 ")& 31" &+ #8 1+"#%+ $,& #, +)$-- @& - $@-& "# 1'(&, $'? !" 8#, ")& %& @& '. ' 8#,!& 8#, .,$'" '. 31" &+ #8 "$%2+

(D/3 . H23D . =D4 E3/6 3 ' OD 4 FD# IC O6 277 +D/E #E 2E G /DH3DG O6 3"D #G

' '(@& " 81,")&, &'$!"&(')$" 8 $'? 5&,+#' *)$"&4&, +)$-- $" $'? %&)$4& 2#++&++ #' #8 $'(* -81--? (&"$ ' $'? &,N "8 !$"& #8 &. +",? .,$'"&(' 1'(&, ") + #, $'? #")&, !"6 *) !) #1.)" "# @& (&- 4&,&(' 12 "# @& !$'!&--&(' $! !#,('. "' '$'? #8 ")& #'N ("#'+ #8 ")& #'( )&,& 'B@&8#,& ,&C1 ,&(' "# @& . 4& 12#' ")& &. +",? #8 $'?) 2 #, <&++&-6 +1!) 5&,+#' +)&,&@? ,&C1 ,&(' $'(&'># '&(' "# (&- 4&, 12 +1!) &," 8 !$"& #8 &. +",? ' %$' '&, (,&!"&(' @? ")& #'("#'+ #8 +1!) #'(' ")& ,&+2&!" 4& $+&+ $'(1'(&, ")& ,&+2&!" 4& 5&'$-" &+ ")&,& ' 2,#4 (&(

)20D . DE^ ED7 Z" H" "2E ODD# /D4 E3D/^ DG #DFD/ 2.3D/Z2/GE 3 ' OD H"2#4DG 2#G 3 ' OD C2 #3DG # 3"D 3D/#

< ' '(@& " 81,")&, &'$!"&(')$" " +)$-- '#" @& -$*81- 8#, $'? *'&,#, *'&,+ #8 $'?) 2 #, <&++&- "# . 4& $'? $%& "# +1!)) 2 #, <&++&- #")&, ")$' ")$" @? *) !) +& *$+ 8 ,+" ,&. +"&,&(' 21,+1$'!& #8 ") + #, $'? #")&, !" $'(")$" ")& *'&, #, *'&,+ #8 $'(&4&,?) 2 #, <&++&- *) !) +)$-- @& +# ,&. +"&,&(' +)$--6 @&8#,& +1!)) 2 #, <&++&-6 $8"&, +1!) &. +",?6 +)$-- @&. ' "# "$:& ' $'? $,.#6 2$ '" #, !$1+& "# @& 2$ '"&(6 ' E) "& #, &--#* ' &""&,+6 #8 $ &'.") #8 '#" -&++ ")$' #1, ' !)&+6 12#' $ -$!: .,#1'(#6 #' +#%& !#'+2 !1#1+ 5$," #8 ")& "&, '6 ")& $%& @? *) !) +1!)) 2 /

a B ʿ ʿ (2C W (

#,ʿ <&++&-ʿ +)$--ʿ)$4&ʿ @&&'ʿ ,&. +"&,&(ʿ 21,+1$'" "#ʿ ") +ʿ !"6ʿ $'(ʿ ")&
5#," "#ʿ *) !)ʿ +)&ʿ @&-#'.+6ʿ 'ʿ $ (+" '!" $'(ʿ -&. @-&ʿ $''&,6ʿ $'(ʿ +)$--
+#ʿ :&&2ʿ $'(ʿ 2,&+&,4&ʿ ")&ʿ +$%&ʿ $'(ʿ ")$" 8ʿ +1!)ʿ *'&,ʿ #,ʿ *'&,+ʿ +D#2736ʿ. /
#,ʿ $+"&,ʿ #,ʿ #")&,ʿ 5&,+#'ʿ)$4 '.ʿ #,ʿ "$: '.ʿ ")&ʿ)$,.&ʿ #,ʿ #%%$'(ʿ ' O EE #!
#8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ +)$--ʿ 2&,% " +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ "#ʿ @&. 'ʿ "#
"$:&ʿ 'ʿ $'?ʿ $,.#ʿ @&8#,&ʿ ")&ʿ $%&ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ)$+ʿ @&&'
+#ʿ 2$ '"&(ʿ $+ʿ $8#,&+$ (6ʿ #,ʿ +)$--ʿ * -81--?ʿ $-"&,6ʿ &,$+&6ʿ #@- "&,$"&6ʿ #,ʿ '
$'?* +&ʿ) (&ʿ #,ʿ !#'!&$-6ʿ #,ʿ !$1+&ʿ #,ʿ 2,#!1,&ʿ #,ʿ 2&,% " ")&ʿ +$%&ʿ "#
@&ʿ (#'&ʿ X1'-&++ʿ 'ʿ ")&ʿ $+&ʿ #8ʿ +C1$,&B, ..&(ʿ <&++&-+ʿ 'ʿ %&ʿ #8ʿ E$,[6
#,ʿ +)$--ʿ 'ʿ $'?ʿ *, ""&'ʿ #,ʿ 2, '"&(ʿ 5$2&,6ʿ #,ʿ #")&,ʿ 3#!1%&'"6ʿ (&+!, @&
+1!)ʿ) 2ʿ #,ʿ <&++&-ʿ @?ʿ $'?ʿ $%&ʿ #")&,ʿ ")$'ʿ ")$" @?ʿ *) !)ʿ +)&ʿ *$+
8 ,+" ,&. +"&,&(ʿ 21,+1$'" "#ʿ ") +ʿ !"6ʿ #,ʿ +)$--ʿ 4&,@$--?ʿ (&+!, @&6ʿ #,
!$1+&ʿ #,ʿ 2,#!1,&ʿ #,ʿ 2&,% " +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ "#ʿ @&ʿ (&+!, @&(6ʿ @?
$'?ʿ #")&,ʿ $%&ʿ "#ʿ $'?ʿ 88 !&,ʿ #,ʿ 88 !&,+ʿ #8ʿ +ʿ $>&+"?;+ʿ &4&'1&
'ʿ ")&ʿ (1&ʿ 9&!1" #'ʿ #8ʿ) +ʿ #,ʿ ")&, ʿ 31"?6ʿ ")&'ʿ $'(ʿ 'ʿ &4&,?ʿ +1!)
$+&ʿ +1!)ʿ *'&,ʿ #,ʿ *'&,+ʿ #,ʿ $+"&,ʿ #,ʿ #")&,ʿ 5&,+#'ʿ)$4 '.ʿ #,
"$: '.ʿ ")&ʿ)$,.&ʿ #,ʿ #%%$'(ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ +)$--ʿ 8#,8&"
")&ʿ 1%ʿ #8ʿ '&ʿ)1'(,&(ʿ 5#1'(+

<ʿ '(ʿ @&ʿ " 81,")&,ʿ &'$!"&(ʿ)$" $--ʿ $'(ʿ &4&,?ʿ 5&,+#'ʿ $'(ʿ I 7GD/&E
5&,+#'+ʿ *)#ʿ +)$--ʿ $22-?ʿ 8#,ʿ $ʿ &," 8 !$"&ʿ #8ʿ ")&ʿ &. +",?ʿ #8ʿ $'?ʿ) 2ʿ \8
#,ʿ <&++&-ʿ +)$--ʿ $'(ʿ ")&?ʿ $,&ʿ)&,&@?ʿ ,&C1 ,&(ʿ "#ʿ 2,#(1!&ʿ "#ʿ ")&ʿ 5&,Bʿ g6>27
+#'ʿ #,ʿ 5&,+#'+ʿ $1")#, L&(ʿ "#ʿ .,$'" +1!)ʿ &," 8 !$"&ʿ $ʿ ",1&ʿ $'(ʿ 81--ʿ
!!#1'"6ʿ 1'(&,ʿ ")&ʿ $'(ʿ #8ʿ ")&ʿ 1 -(&,ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-6ʿ #8
")&ʿ 2,#2&,ʿ 3&'#% '$" #'6ʿ $'(ʿ #8ʿ ")&ʿ %&ʿ *)&'ʿ $'(ʿ ")&ʿ 5-$!&ʿ *)&,&
+1!)ʿ) 2ʿ #,ʿ <&++&-ʿ *$+ʿ @1 -"6ʿ $'(ʿ $-+#ʿ $'ʿ &9$!" !!#1'" #8ʿ ")&
#''$.&ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-6ʿ "#.&")&,ʿ * ")ʿ ")&ʿ $%&ʿ #8ʿ ")&ʿ 8 ,+"
51,!)$+&,ʿ #,ʿ 51,!)$+&,+ʿ ")&,&#8ʿ X*) !)ʿ !!#1'" +1!)ʿ 1 -(&,ʿ +
)&,&@?ʿ (,&!"&(ʿ $'(ʿ ,&C1 ,&(ʿ "#ʿ . 4&ʿ 1'(&,ʿ) +ʿ $'(ʿ #'ʿ ")&ʿ +$%&
@& '.ʿ (&%$'(&(ʿ @?ʿ +1!)ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ +#ʿ $22-? '.ʿ 8#,ʿ $ʿ &," 8 N
!$"&ʿ $+ʿ $8#,&+$ ([6ʿ $'(ʿ +)$--ʿ $-+#ʿ %$:&ʿ $'(ʿ +1@+!, @&ʿ $ʿ 3&!-$,$" #'ʿ 3&!-$,$" #'
@&8#,&ʿ ")&ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ)&,& 'B@&8#,&ʿ $1")#, L&(ʿ "#ʿ .,$'" +1!)ʿ "#@&ʿ %$(&
&," 8 !$"&ʿ ")$" ")&ʿ) 2ʿ #,ʿ <&++&-ʿ 8#,ʿ *) !)ʿ +1!)ʿ &," 8 !$"&ʿ +
,&C1 ,&(ʿ +ʿ ")&ʿ +$%&ʿ * ")ʿ ")$" *) !)ʿ +ʿ +#ʿ (&+!, @&(ʿ @?ʿ ")&ʿ 1 -(&,ʿ
$+ʿ $8#,&+$ (

<ʿ '(ʿ @&ʿ " 81,")&,ʿ &'$!"&(ʿ)$" 8ʿ ")&ʿ &," 8 !$"&ʿ #8ʿ (D/3 . H23D .
&. +",?ʿ #8ʿ $'?ʿ) 2ʿ #,ʿ <&++&-ʿ +)$--ʿ @&ʿ -#+" #,ʿ % +-$ (6ʿ +#ʿ ")$" ")&ʿ =D4 E3/6 7 E3
+$%&ʿ !$''#" @&ʿ 8#1'(ʿ #,ʿ #@"$ '&(ʿ 8#,ʿ ")&ʿ V+&ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ ;
*)&'ʿ '&&(81-6ʿ $'(ʿ 5,##8ʿ ")&,&#8ʿ +)$--ʿ @&ʿ %$(&ʿ "#ʿ ")&ʿ $" +8$!" #'ʿ (O O EE #ʿ
#8ʿ ")&ʿ #%% ++ #'&,+ʿ #8ʿ +ʿ $>&+"?;+ʿ 1+"#%+6ʿ +1!)ʿ #%% ++ #'&,+ʿ 5W
+)$--ʿ $'(ʿ %$?ʿ 2&,% " +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ "#ʿ @&ʿ ,&. +"&,&(ʿ ʿ ʿ &'#4#
$'(ʿ $ʿ &," 8 !$"&ʿ ")&,&#8ʿ "#ʿ @&ʿ .,$'"&(] 5,#4 (&(ʿ $-*$?+6ʿ ")$" 8
+1!)ʿ) 2ʿ #,ʿ <&++&-ʿ @&ʿ $@+&'" $'(ʿ 8$,ʿ (+"$'" 8,#%6ʿ ")&ʿ 5#," "#ʿ *) !)ʿ HD#HD!
+)&ʿ @&-#'.+6ʿ #,ʿ @?ʿ ,&$+#'ʿ #8ʿ ")&ʿ @+&'!&ʿ #8ʿ ")&ʿ *'&,ʿ #,ʿ *'&,+6
#,ʿ #8ʿ $'?ʿ #")&,ʿ %2&(%&'"6ʿ &. +",?ʿ #8ʿ ")&ʿ +$%&ʿ !$''#" ")&'ʿ @&
%$(&ʿ 'ʿ +188 ! &'" %&&6ʿ +1!)ʿ #%% ++ #'&,+ʿ +)$--ʿ $'(ʿ %$?ʿ .,$'"$
!&'!&ʿ 8#,ʿ ")&ʿ 2,&+&'" V+&ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-6ʿ *) !)ʿ !&'!&
+)$--6ʿ 8#,ʿ ")&ʿ %&ʿ $'(ʿ "#ʿ ")&ʿ 9"&'" +2&! 8 &(ʿ ")&,& '6ʿ $'(ʿ '#ʿ
@&ʿ #8ʿ ")&ʿ +$%&ʿ 8#,!&ʿ $'(ʿ 4 ,"1&ʿ $+ʿ $ʿ &," 8 !$"&ʿ #8ʿ &. +",?ʿ .,$'"&(ʿ
1'(&,ʿ ") +ʿ !"] 5,#4 (&(ʿ $-*$?+6ʿ ")$" @&8#,&ʿ +1!)ʿ ʿ ʿ ʿ #G /Dʿ
@&ʿ %$(&ʿ ")&ʿ *'&,ʿ #,ʿ *'&,+ʿ $'(ʿ $+"&,ʿ +)$--ʿ . 4&ʿ #'(ʿ "#ʿ ʿ ECDH3 #4 7 E3
#%% ++ #'&,+ʿ $8#,&+$ (ʿ 'ʿ +1!)ʿ 1%ʿ $+ʿ "#ʿ ")&%ʿ +)$--ʿ +&&%ʿ 8 "6ʿ *")

(#G 3 #

$ #'("#'' ")$" 8")& &," 8 !$"&#8 &. +",?+)$-- $" $'? %& $8"&,N *$,(+ @& 8#1'(")& +$%& +)$-- @& 8#,")* ") (&- 4&,&("# ")& 2,#2&, 88 !&,+ #8 + $>&+"?;+ 1+"#%+ "# @& !$' !&--&(6 $'(")$" '# --&.$- V+&)$+ @&&'' #, +)$-- @& %$(& ")&,&#8 * ")) + #, ")& , 5, 4 "? #,

*DH72/23 #
3 'OD O2GD
OD. /D ^
HD#HD OD
4/2#3DG

D'#*-&(.& > $'(81,")&,6 ")$" @&8#,& $'? +1!) !&'!& +)$-- @& .,$'"&($+ $8#,&+$ (")& $+"&, #8 +1!)) 2 #, <&++&- +)$-- $-+# %$:& $'(+1@+!, @& $ 3&!-$,$" #'' ")$" ")& +$%&)$+ @&&'' ,&. +"&,&($+ $ ( ) 26 '$% '. ")& 5#," *)&,& $'(")& %& *)&'' +1!) &. +",? *$+ %$(&6 $'($-- ")& 5$," !1-$,+ !#'"$ '&('' ")& &,N " 8 !$"& ")&,&#86 "# ")& @&+" #8) + D'#*-&(.& $'(&- &86 $'(+)$8" $-+# . 4& +1!) #'($'(* ") ")& +$%& #'("#'' $+ + @&8#,& %&- B " #'&(] 5,#4 (&($-+#6 ")$" @&8#,& $'? +1!) !&'!& +)$-- @& .,$'"&(

D. /D ^
HD#HD OD
4/2#3DG " C
3 'OD E I /FD6^
DG 2E .'. /
=D4 E3/6N

+1!)) 2 #, <&++&- +)$-- @& +1,4&?&('' - :& $''&, $+ 8 $ &. +",? * &,& $@#1" "# @& %$(& ")&,&#8 $'(")& &," 8 !$"&#8 +'!) 1,4&? +)$-- @& 2,&+&,4&(@? ")& #--&!"#, $'(#'",#--&, #8 ")& 5#," "# *) !) +1!)) 2 #, <&++&- +)$-- @&-#' . $'('' 4 ,"1& ")&,&#8 " +)$-- @& -$*81- 8#, ")& +$ (#%% ++ #'&,+ $'(")&? $,&)&,&@?

2#G =D4 E3/6
O26 OD O2GD
2.3D/ *DC2/^
3 I /D .' 3"D
" CN

,&C1 ,&("# 2&,% +1!)) 2 #, <&++&- "# @& ,&. +"&,&($8"&,)&, 3&2$,"1,&6 *)&'&4&, ")& *'&, #, *'&,+ +)$-- 2&,+#'$--? $""&'("# "$:& $'(+1@+!, @& ")& 3&!-$,$" #'' ,&C1 ,&(@? ") + !" @&8#,& &. +",? @& %$(&6 $'(+)$-- $-+# !#%2-? * ") $-- #")&, &C1 + "&+ #8 ")+ !"6 &9!&2" +# 8$,$+ ,&-$"&+ "# ")& #'("# @& . 4&'' @?")& $+"&,

2#G (D/3 . ^
H23D 3/2#E^
O 33DG 3 'OD
D&H"2#4DG. /
3"D HD#HD

#8 +1!)) 2 #, <&++&- *) !) &," 8 !$"&#8 &. +",? ")& +$ (#%N % ++ #'&,+ +)$-- $'(%$? ",$'+% "# ")& #--&!"#, $'(#'",#--&, #8 $'? #")&, 5#,"6 "# @& @? ")&% . 4&'' "# ")& $+"&, #8 +1!)) 2 <&++&-6 12#'') + . 4 '. +1!) #'(6 $'((&- 4&, '. 12 ")& !&'! *) !))$(@&&'' .,$'"&(8#, ")& ")&'' 2,&+&''V+& #8 +1!)) 2 #, <&++&-

+D/ E #E GD^
32 # #4 (D/^
3 . H23D .'
=D4 E3/6 3 '
. /.D 3 ''.

< '(*)&,&$+ " + '#" 2,#2&,")$" $'? 5&,+#'' 1'(&, $#? 5,&"&'!& *)$"&4&, +)#1-((&"$ '' ")& &," 8 !$"& #8 &. +",? #8 7?) 2 #, <&++&-6 #,)#-(")& +$%& 8#, $'? 51,2#+& #")&,")$''")& -$*8""- V+& $'($4 .$" #'' #8 ")&) 2 #, <&++&- 8#, *) !) " *$+ .,$'"&(> @& ")&,&8#,& &'$!"&( )$" '' !$+& $'? 5&,+#'' *)# +)$--)$4& ,&!& 4&(#, #@"$ '&(@? $'? &$'+ #, 8#, $'? 51,2#+& *)$"&4&, ")& &," 8 !$"&#8 ")& &. +",? #8 $'?) 2 #, <&++&- X *)&")&, +1!) 5&, #V +)$-- !-$%6 "# @& ")& $+"&, #, "# @& ")& *'&, #, #'& #8 ")& *'&,+ #8 +1!)) 2 #, <&++&-6 #, '#"6[+)$-- * -81--? (&"$ '' $'(,&81+& "# (&- 4&, 12 ")& +$%& "# ")& 2,#2&, 88 !&,+ #8 + $>&+"?;+ 1+"#%+6 8#, ")& 51,2#+&+ #8 +1!)) 2 #, <&++&-6 $+ !!$+ #'' +)$-- ,&C1 ,&6 #, "# ")& 5&,+#'' #, 5&,+#'++)$4 '. ")& $!"1$- #%%$'(6 5#++&++ #'6 $'($'$.&%&'" #8 +1!)) 2 #, <&++&- $+ ")& #+"&'+ @-& $'(,&21"&($+"&, #, $+ ")& #+"&'+ @-& $'(,&21"&(*'&, #, *'&,+ ")&,&#8 %$? $'(+)$-- @& -$*81- "# $'(8#, $'? +1!) -$+"B%&'" #'&(5&,+#'' "# %$:& #%2-$ ''" #'' $")$ #8 +1!) 3&"$ '& $'(&81+$- "# $'? R1+" !& #8 ")& 5&$!& ,&+ ('. '&$, "# ")& 5-$!& *)&,& +1!) 3&"$ '& $'(&81+$- +)$-- @& '' (#, #, "# $'? &%@&,#8 ")& 12,&%& #1,"#8 R1+" !& #, $'? R1+" !& #8 ")& 5&$!& '' ")& +-$'(+ #8& #, #, ''$'? #-#'?6 5-$'"$" #'6 +-$'(6 #, &,, "#,?"# + $>&+"? @&-#'. '. '' #, * #, '' #,) *)&,& +1!) 3&"$ '& $'(&81+$- +)$-- @& ''$'? #8 ")& 5-$!&+ -$+" %&'" #'&('' $'(#'' +1!) #%2-$ '' ")& +$ (R1+" !& #, #")&, $. +",$"& +)$-- $'(+)&,&@? ,&C1 ,&(@? E$,,$'"

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$.$ '+" "# @& @,#1.)" @&8#,&) % "# @& &9$% '&(' "#1!) '.' +1!)' 3&N
"$ '&,' $'(' &81+$-' $'(' 8 " +)$--' $22&$,' "# ")& +$ (' R1+" !&7#,7#")&,'
$. +",$"&6 #'' 9$% '$" #'' #8 +1!)' 5&,+#'' #,' #")&,* +&6 ")$" ")&
+$ (' &," 8 !$"& #8 &. +",? + '#" -#+" #,' % +-$ (6 @1" + * -81--?
(&"$ '&(' @? ")& +$ (' 5&,+#'6 +1!)' 5&,+#'' +)$--' @& ")&,&#8 !#'4 !"&(6
$'(' +)$--' 8#,8& " $'(' 2$? ")& 1% #8 '&)1'(,&(' 5#1'(+6 $'(' #''
8$ -1,& #8 5$?%&'" ")&,&#8)& +)$--' @& !#%% ""&(' "# ")& #%%#''
H$#-6 ")&,& "# ,&%$ '' * ")#1" $-' #,' $ '2, L& 8#,' +1!)' %& $+
")& +$ (' R1+" !& #,' #")&,' $. +",$"& +)$--' '') + 3 +!,&" #'' (&&%
2,#2&,6 '#" @& '.' -&++ ")$''),&& #'")+ '#,' %#,& ")$'' *&-4&
#'")+' $'(' ")& +$ (' R1+" !& #,' #")&,' $. +",$"& +)$--' $'(')& + , IE3 HD 3 '
)&,&@? ,&C1 ,&(' "# !&," 8? ")& $8#,&+$ (' 3&"$ '&,6 &81+$-6 $'(' #'N HD/3 .6 *D^
4 !" #'' "# ")& 5&,+#'' #,' 5&,+#'+ *)# .,$'"&(' +1!)' &," 8 !$"& #8 32 #D/! 2#G
&. +",? 8#,' +1!)') 2 #,' <&++&-6 *)# +)$--6 #'' ")& &,%+ $'(' #'N " C 3 ' OD
("#'+ #8 $*' @& '.' !#%2- &(' * ")6 %$:& &. +",? #8 +1!)') 2 #,' /D4 E3D/DG
<&++&-' !F& '#4#6 $'(' .,$'" $ &," 8 !$"& ")&,&#8 !#'8#,%$@-? "# $*6 GD # F
'#" 8? '.' #'' ")& $!:' '+1!)' &," 8 !$"& ")& H,#1'(' 12#'' *) !)'
")&) 2 #,' <&++&-' *$+ +# ,&. +"&,&(' -' $'(' 8 ")& 5&,+#'' *)# .'+D/E # GD^
+)$--')$4& (&"$ '&(' $'(' ,&81+&(' "# (&- 4&,' 12 +1!)' &," 8 !$"& #8 32 # #4 (D/^
&. +",? $+ $8#,&+$ (6 #,' +)$--' @& 4&, -? @&- &4&(' "#)$4& (&"$ '&(' ")& 3 . H23D "2FD
+$%&6 +)$--')$4& $@+!#'(&(6 +# ")$" ")& +$ (' E$,,$'" #8 ")& R1+" !& 2OEH #GDG!
#,' #")&,' $. +",$"& !$' '#" @& &9&!1"&(' 12#'') %6 $'(' 5,##8 ")&,&#8 " C 026 OD
+)$--' @& %$(& "# ")& $" +8$!" #'' #8")& #%% ++ #'&,+ #8 + $>&+"?;+ /D4 E3D/DG IE
1+"#%+6 " +)$--' @& -$*81-' 8#,' ")& +$ (' #%% ++ #'&,+ "# 2&,% " +1!)' # H2ED .'7 E3
) 2 #,' <&++&-' "# @& ,&. +"&,&(' ' ' #,' #")&,* +&6 '' ")& ,' 3 +N (D/3 . H23D
!,&" #'6 "# .,$'" $!&'!& 8#,' ")& 2,&+&'"V+& #8 +1!)') 2 #,' <&++&-'
'' - :& $''&,' $+ +)&,& 'B@&8#,& 2,#4 (&(' '' ")& $+& *)&,& '' ")&
&," 8 !$"& #8 &. +",? + -#+" #,' % +-$ (

< ' '(' @& " 81,")&,' &'$!"&(6)$" 8 $'?) 2 #,' <&++&-6 +) 2 273D/DG
$8"&,' +)& +)$--')$4& @&&'' ,&. +"&,&(' 21,+1$'" "# ")& 3 ,&!" #'+ #8") + # HD/32 #
!"6 +)$--' '' $'? $''&,' *)$"&4&,' @& $-"&,&(' +# $+ '#" "# !#,,&+2#'(
* ")' $--' ")& 5$," !1-$,+ !#'"$ '&(' '' ")& &," 8 !$"& #8)&,' &. +",?6
'' +1!)' $+& +1!)') 2 #,' <&++&-' +)$--' @& ,&. +"&,&(' ' ' ''
%$''&,')&,& 'B@&8#,& ,&C1 ,&(6 $+ +##'' $+ +)& ,&"1,'+ "# ")& 5#," '
*) !)' +)& @&-#'.+6 #,' "# $'? #")&,' 5#," *) !)' +)$--' @& '' ")& +$%&
5$," #8 ")& V' "&(' D '.(#%6 #,' '' ")& +$%& #-#'?6 5-$'"$" #'6
+-$'(6 #,' &,, "#,?6 $+ ")& +$ (' 5#," +)$--' @& '6 #'' 8$ -1,& *)&,&#8
+1!)') 2 #,' <&++&-' +)$--' "# $--' '"&'"+ $'(' 51,2#+&+ @& !#'+ (&,&('
$'(' (&&%&(' $'(' "$:&'' "# @& $) 2 #,' <&++&-' '#" (1-? ,&. +"&,&(

' '(' @& " 81,")&,' &'$!"&(')$" ")& *'&,' #,' *'&,+ #8 DEED7E H # '
$--' +1!)') 2+ $'(' <&++&-+ $+ +)$--' @& "$:&'' @? $'? #8 + $>&+"?;+ GD O#DG 2'
) 2+ #,' <&++&-+ #8 E$,6 #,' @? $'? 2, 4$"& #,' #")&,' ' 'N ' @,&$!)'
$'(' !#'(&%'&(' $+ -$*81-' 5, L& '' $'? #1," ' (% ,$-"?6 #,' #8+1!)' 2ZE 242 #E3
) 2+ #,' <&++&-+ $+ +)$--' @& !#'(&%'&(' '' $'? !#%2&"&'" ' ' '5 '
8#,8& "&(' 8#,' ,&$!)' #8 ")& $*+ 8#,' ")& 5,&4&'" #'' #8 ")& -$4&
,$(&6 +)$--6 8#,' ")& 51,2#+& #8 ,&. +"&, '.' $'? +1!)') 2 #,' <&++&-6
2,#(1!& "# ")& #--&!"#,' $'(' #'",#--&,' #8 + $>&+"?;+ 1+"#%+ $ 2,#(1!&('
&," 8 !$"& #8 ")& #'(&%'$" #'' #8 +1!)') 2 #,' <&++&-6 1'(&,' ")&
$'(' $'(' &$-' #8 ")& R1(.& #8 ")& #1," '' *) !)' +1!)') 2 #,'
<&++&-' +)$--')$4& @&&'' !#'(&%'&(' X*) !)' &," 8 !$"& +1!)' R1(.& +
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)&,&@?' $1")#, L&(' $'(' ,&C1 ,&('"#' .,$'"[6' $'(' $-+#' $",1&' $'(' &9$!"
!!#1'" '' E, " ' .' #8' $--' ")&' 5$," !1-$,+' !#'"$ '&(' '' ")&' &," 8 !$"&'
)&,& 2B@88#,&' +&" 8#,")6' "#' @&' %$(&' $'(' +1@+!, @&(' @?' '&' #,' %#,&'
+: -81-' 5&,+#'' #,' 5&,+#'+' "#' @&' $22# '"&(' @?' ")&' #1," ")&'' $'('
")&,&' "#' +1,4&?' +1!)') 2' #,' <&++&-6' $'(' +)$--' $-+#' %$:&' $'('6+1@+!, @&'
$' 3&!-$,$" #'' @&8#,&' ")&' #--&!"#,' $'(' #'" # &,")$" +1!)') 2' #,'
<&++&-' +' ")&' +$%&' <&++&-' *) !)' +' %&'" #'&(' '' ")&' &," 8 !$"&' #8' ")&'
R1(.&' $8#,&+$ (

+/ dD' DEED7E' # 3' 3 ' OD' /D4 E3D/DG' 23' ID/#ED6' ,D/ED6' /' B 2#C' OI3' 23' HD/32 #+ /3E

' 5,#4 (&(' $-*$?+6' $'(' @&' "81,")&,'&'$!"&(6')$" '#') 2' #,'
<&++&-' *) !)' +)$--' @&' "$:&'' $'(' !#'(&%'&(' $+' 5, L&' #,' #,8& "1,&'
$+' $8#,&+$ (' +)$--' @&' ,&. +"&,&(' '' ")&' +-$'(+' #8' '& ' #,
$-")#1.)' @&-#'. '.' "#' +' $>&+"?;+' 1@>&!"+' ,&+ ('.' '' ")#+&'
+-$'(+6' #,' '' +#%&' #'&' #,' #")&,' #8' ")&%' ' @1" ")& +$%&' +)$--' @&' ,&. +N
"&,&(' &")&,' $" * ' / * ' .8 ' > * ' 1 * '
' #,' / ' @?' ")&' #--&!"#,' $'(' #'",#--&,' $" +1!)'
5#,"+' ,&+2&!" 4&-?6' *)#' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' "#' ,&. +"&,'
+1!)') 2' #,' <&++&-6' $'(' "#' .,$'" $' &," 8 !$"&' ")&,&#8' '' ")&' #,%'
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/2#E.D/E' .' #3D/DE3' 3 'OD' O2GD' O6' 7' .' 27DN

/DH 3 #4' (D/3 . H23D' .' =D4 E3/6

7' .' 27D' # 3'F G O6' I# OC /32#3' // / .' =DH 327' H

' '(' @&' "81,")&,' &'$!"&(')$" *)&'' $'(' +#' #8"&"" $+' ")&'
5,#2&,"?' '' $'?') 2' #,' <&++&-6' #,' $'?' 5$," ")&,&#86' @&-#'. '.' "#' $'?'
#8' +' $>&+"?;+' 1@>&!"+6' +)$--6' $8"&,' &. +",?' ")&,&#86' @&' +#-(' "#' $'?'
#")&,' #,' #")&,+' #8' +' $>&+"?;+' 1@>&!"+6' ")&' +$%&' +)$--' @&' ",$'+8&,,&('
@?' --' #8' $-&' #,' #")&,' '+",1%&'" '' E, " '.6' !#'"$ '.' $' &! "$-'
#8' ")&' &," 8 !$"&' #8' &. +",?' #8' +1!)') 2' #,' <&++&-6' #,' ")&' 2, '! 2$-'
#'"&'"+' ")&,&#86' #")&,* +&' +1!)' ,$'+8&,' +)$--' '#')&' 4$- (' #,' &88&!N
"1$-' 8#,' $'?' 51,2#+&' *)$"&4&,6' &")&,' '' $*' #,' '' C1 "?] 5,#4 (&('
$-*$?+6' ")$" '#' --' #8' $-&' +)$--' @&' (&&%&(' 4# (' @?' ,&$+#'' #8' $'?'
,,#,' '' +1!)' &! "$-6' #,' @?' "@&' &! "$-' #8' $'?' 8#,%&,' &," 8 !$"&'
#8' &. +",?' '+"&$(' #8' ")&' &9 +" '.' &," 8 !$"&6' 2,#4 (&(' ")&' (&'" "?'
#8' ")&') 2' #,' <&++&-' '"&'(&(' '' ")&' &! "$-' @&' &88&!"1$--?' 2,#4&('
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+/ CD/36' # " CE' 3 ' OD' G F GDG' #3 ' &36 . I' +2/3E' / "2/DE

' '(' @&' "81,")&,' &'$!"&(')$" "@&' 5,#2&,"?' '' &4&,?'
) 2' #,' <&++&-' #8' *) !)' ")&,&' $,&' %#,&' ")$'' '&' *'&,' +)$--' @&'
"$:&'' $'(' !#'+ (&,&(' "#' @&' (4 (&(' '"#' 9"?B8#1,' &C1$-' 5$,"+' #,'
)$,&+6' $'(' ")&' 5,#2#," #'')&-(' @?' &$!)' *'&,' +)$--' @&' (&+!, @&(' ''
")&' &. +",?' $+' @&' '.' $' !&,"$ '' 1%@&,' #8' 9"?B8#1,")' 5$,"+' #,'
)$,&+' $'(' ")$" '#' 5&,+#'' +)$--' @&' &'" "-&(' "#' @&' ,&. +"&,&(' $+' $''
*'&,' #8' $'?') 2' #,' <&++&-' ' ,&+2&!" #8' $'?' 5,#2#," #'' #8' +1!)') 2'
#,' <&++&-' *) !)' +)$--' '#' @&' $'' '"&.,$-' 9"?B8#1,")' 5$," #,')$,&'
#8' ")&' +$%&' $'(' 12#'' ")&' 8 ,+" &. +",?' #8' $'?') 2' #,' <&++&-' ")&'
*'&,' #,' *'&,+' *)#' +)$--' "$:&' $'(' +1@+!, @&' ")&' 3&!-$,$" #'' ,&N
C1 ,&(' @?' ")' +' !" @&8#,&' &. +",?' @&' %$(&' +)$--' $-+#' (&!-$,&' ")&'
1%@&,' #8' +1!)' 5$,"+' #,')$,&+' ")&'')&-(' @?' &$!)' *'&,6' $'(' ")&'
+$%&' +)$--' @&' +#' ,&. +"&,&(' $!!#,('.' "#' ' 5,#4 (&(' $-*$?+6' ")$" 8'
+)$--' $" $'?' %&')$22&'' ")$" ")&' 5,#2&,"?' #8' $'?' *'&,' #,' *'&,+'
' $'?') 2' #,' <&++&-' !$'"#" @&' ,&(1!&(' @?' 3 4 + #'' '"#' $'?' 1%N
@&,' #8' '"&.,$-' 9"?B8#1,")' 5$,"+' #,')$,&+6' "#' +)$--' $'(' %$?' @&' -$*81-'
8#,' ")&' *'&,' #,' *'&,+' #8' +1!)' 8,$!" #'$-' 5$,"+' $+' +)$--' @&' #4&,' $'('
$@#4&' +1!)' 1%@&,' #8' '"&.,$-' 9"?B8#1,")' 5$,"+' #,')$,&+' '"#' *) !)'
+1!)' 5,#2&,"?' '' $'?') 2' #,' <&++&-' !$' @&' ,&(1!&(' @?' 4 + #'' '"#'

",$'+8&,' ")&' +$%&' #'&' "#' $'#")&,6' #,' ># '"-?' "#' $'?' '&*' *'&,6' @?'
&%#,$'(1%' 12#'' ")& ,' ,&+2&!" 4&' --+' #8' $-&6' #,' @?' 8,&+)' --' #8'
$-&6' * ")#1" +1!)' ,$'+8&,' @& '.' -$@-&' "#' $'?' "$%2' 31"?]' 5,#N
4 (&(' $-+#6' ")$"' ")&' .)" #8' $'?' *'&,' #,' *'&,+' "#' $'?' +1!)' 8,$!N
"#'$-' 5$,"+' +)$--' '#" @&' $88&!"&(' @?' ,&$+#'' #8' ")&' +$%&' '#")$4 '.'
@&&'' ,&. +"&,&('] 5,#4 (&(' $-+#6' ")$" "+)$--' @&' -$*81-' 8#,' $'?' 1%N
@&,' #8' +1!)' *'&,+6' '$%&(' $'(' (&+!, @&(' '' +1!)' &. +",?6' @& '.'
5$,"'&,+' '' $'?' #1+&' #,' #2$,"'&,+) 2' $!"1$--?' !$,,? '.' #'' ,$(&'
'' $'?' 5$," #8' +' $>&+"?;+' 3#% ' #'+6' "#')#-(' $'?') 2' #,' <&++&-6'
#,' $'?')$,&' #,')$,&+' #8' $'?') 2' #,' <&++&-6' '' ")&' $%&' #8' +1!)'
#1+&' #,' #2$,"'&,+) 26' $+' ># '' *'&,+' ")&,&#86' * ")#1" (+" 'N
.1 +) '.' ")&' 2,#2#," #'$"&' '"&,&+" #8' &$!)' #8' +1!)' *'&,+6' $'(' ")$"
+1!)') 2' #,' <&++&-' #,' ")&')$,&' #,')$,&+' ")&,&#8' +#')&-(' '' #N
2$,"'&,+) 2' +)$--' @&' (&&%&(' $'(' "$:&'' "#' @&' 5$,"'&,+) 2' 5,#2&,"?'
"#' $--' '"&'"+' $'(' 51,2#+&+6' $'(' +)$--' @&' .#4&,'&(' @?' ")&' +$%&' 1-&+6'
@#")' '' $*' $'(' C1 "?6' $+' ,&-$"&' "#' $'(' .#4&,'' $--' #")&,' 5$,"'&,+) 2'
5,#2&,"?' '' $'?' #")&,' H##(+6')$""&-+6' $'(' 88&!"+' *)$"+#&4&,

' '(' @&' "81,")&,'&'$!"&(')$"' '#' .,&$"&,' 1%@&,' ")$''
) ,"?B"*#' 5&,+#'+' +)$--' @&' &'""-&(' "#' @&' -&.$-' *'&,+' $" #'&' $'('
")&' +$%&' %&' #8' $'?') 2' #,' <&++&-6' $+' &'$'"+' '' #%%#'6' #,' "#'
@&' ,&. +"&,&(' $+' +1!)] 5,#4 (&(' $-*$?+6' ")$" '#") '.')&,& '' !#'B'
"$ '&(' +)$--' $88&!" ")&' &C1 "$@-&' "-&' #8' '#,+6' & ,+6' &.$"&&+6'
,&("#,+6' #,' #")&,+6' &9!&&('.' ")$" 1%@&,6' (1-?' ,&2,&+&'"&(' @?' #,'
)#-('.' 8,#%' $'?' #8' ")&' 5&,+#'+' * ") '' ")&' +$ (' 1%@&,6' ,&. +"&,&('
$+' -&.$-' *'&,+' #8' $'?')$,&' #,')$,&+' #8' +1!)') 2' #,' <&++&-] 5,#N
4 (&(' $-+#6' ")$" 8' '' +)$--' @&' 2,#4&(' "#' ")&' $" +8$!" #'' #8' ")&' #%N
% ++ #'&,+' #8' +' $>&+"?;+' 1+"#%+' ")$" $'?' 1%@&,' #8' 5&,+#'+'
)$4&' $++#! $"&(' ")&%+&-4&+' $+' $R# '' "#!:' #%2$'?6' 8#,' ")&' 51,2#+&'
#8' #*' '.' $'?') 2' #,' <&++&-6' #,' $'?' 1%@&,' #8') 2+' #,' <&++&-+6' $+'
")&' ># '' 5,#2&,"?' #8' +1!)' #%2$'?6' $'(' ")$" +1!)' #%2$'?')$4&'
(1-?' &-&!"&(' #,' $22# '"&(' $'?' 1%@&,6' '#" -&++' ")$''),&&6' #8' ")&'
&%@&,+' #8' ")&' +$%&' "#' @&' ,1+"&&+' #8' ")&' 5,#2&,"?' '' +1!)') 2' #,'
<&++&-' #,') 2+' #,' <&++&-+' +#' #*'&(' @?' +1!)' #%2$'?6' "+)$--' @&'
-$*81-' 8#,' +1!)' ,1+"&&+' #,' $'?'),&&' #8' ")&%6' * ")' ")&' 5&,% ++ #''
#8' +1!)' #%% ++ #'&,+6' "#' %$:&' $'(' +1@+!, @&' ")&' 3&!-$,$" #'' ,&N
C1 ,&(' @?' ") +' !" @&8#,&' &. +",?' @&' %$(&6' &9!&2" ")$" '+"&$(' #8'
+"$" '.' ")&,& '' ")&' $%&+' $'(' 3&+!, 2" #'+' #8' ")&' #")&,' *'&,+6'
")&?' +)$--' +"$"&' ")&' $%&' $'(' 3&+!, 2" #'' #8' ")&' #%2$'?' "#'
*) !)' +1!)') 2' #,' <&++&-' #,') 2+' #,' <&++&-+' +)$--' '' +1!)' $''&,'
@&-#'.

<' '(' @&' "81,")&,'&'$!"&(')$"' '#' --' #8' $-&' #,' #")&,'
'+",1%&'' '' E, " '.' +)$--' @&' 4$- ('$'(' &88&!"1$-' "#' 2$++' ")&' 5,#2&,"?'
'' $'?') 2' #,' <&++&-6' #,' '' $'?')$,&' ")&,&#86' #,' 8#,' $'?' #")&,' 51,N
2#+&6' 1'' -' +1!)' --' #8' $-&' #,' #")&,' '+",1%&'' '' E, " '.' +)$--')$4&'
@&&'' 2,#(1!&(' "#' ")&' #--&!"#,' $'(' #'",#--&,' #8' ")&' 5#," $" *) !)'
+1!)') 2' #,' <&++&-' +' $-,&$(?' ,&. +"&,&(6' #,' "#' ")&' #--&!"#,' $'('
#'",#--&,' #8' $'?' #")&,' 5#," $" *) !)' +)&' +' $@#1" "#' @&' ,&. +"&,&('
$+' ")&' $+&' %$?' @&6' '#,' 1'" -' +1!)' #--&!"#,' $'(' #'",#--&,'
,&+2&!" 4&-?' +)$--')$4&' &'"&,&(' '' ")&' ##:' #8' +1!)' -$+" &. +",?6' ''
")&' #'&' $+&6' #,' '' ")&' ##:' #8' +1!)' &. +",?' $8"&,' $--' ")&
&C1 + "&+

+2/3#D/E' 026 " 7G' " CE' / "2/DE' Z 3"^ I3' G E3 #^ 4I E" #4' C/ ^ C /3 #23D' #3D/DE3' .' D2H7' ' Z#D/

'#76' " /36' 3Z '+D/E #E' 3 'OD' ' Z#D/E' .'2#6' " C 23' '#D' OD') 3'3 '2..DH3 3"D' D\ I 32O7D' 37D' .' >D /E' H , #3' 3 H]' (OC2# DE

/IE3DDE' 026 2CC76' 3 ' "2FD' =D4 E3/6' O2GD

77E' .' 27D' #I3' D..DH3I27' I#3 7' C/ ^ GIHDG' 3 ' '..HD/E' .' (IE3 OE' 2#G D#3D/DG' # 3"D']' .' =D4 E3/6' /' .' #3D#GDG' =D4 E3/6

(ʿ   ʿ   ʿ   B ʿ   ʿ   (2CʿWʿ

&C1 + "&+ʿ #8ʿ $ * ʿ 8#,ʿ +1!)ʿ &. +",?ʿ ʿ   ʿ +)$--ʿ)$4&ʿ @&& 'ʿ (1-?ʿ !#%2- &(ʿ * ")6ʿ 'ʿ ")&ʿ #")&,ʿ $+&6ʿ X$'(ʿ *) !)ʿ ")&?ʿ $,&ʿ ,&+2&!" 4&-?ʿ)&,&@?ʿ ,&C1 ,&(ʿ "#ʿ (#ʿ 12#'ʿ ")&ʿ 5,#(1!" #'ʿ #8ʿ ")&ʿ --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'ʿ 8#,ʿ ")$"ʿ 51,2#+&6[")&ʿ $%&6ʿ &+ (&'!&6ʿ $'(ʿ 3&N +!, 2" #'ʿ #8ʿ ")&ʿ <&'(#,ʿ #,ʿ #,".$.#,6ʿ #,ʿ #8ʿ &$!)ʿ <&'(#,ʿ #,ʿ #,"N .$.#,6ʿ 8ʿ %#,&ʿ ")$'ʿ '&6ʿ ")&ʿ 1%@&,ʿ #8ʿ)$,&+ʿ ",$'+8&,,&(6ʿ ")&ʿ $%&6ʿ &+ (&'!&6ʿ $'(ʿ 3&+!, 2" #'ʿ #8ʿ ")&ʿ 51,!)$+&,ʿ #,ʿ #,".$.&&6ʿ #,ʿ #8ʿ &$!)ʿ 51,!)$+&,ʿ #,ʿ #,".$.&&6ʿ 8ʿ %#,&ʿ ")$'ʿ '&6ʿ $'(ʿ ")&ʿ 3$"&ʿ #8ʿ ")&ʿ --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'"6ʿ $'(ʿ #8ʿ ")&ʿ 5,#(1!" #'ʿ #8ʿ "ʿ $'(ʿ 81,")&,6ʿ 8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ +ʿ '#"ʿ $@#1"ʿ "#ʿ @&ʿ ,&. +"&,&(ʿ ʿ ")&ʿ #--&!"#,ʿ $'(ʿ #'",#--&,ʿ #8ʿ ")&ʿ 5#,"ʿ *)&,&ʿ +1!)ʿ) 2ʿ +ʿ ,&. +"&,&(ʿ +)$--ʿ $'(ʿ ")&?ʿ $,&ʿ)&,&@?ʿ ,&C1 ,&(ʿ "#ʿ '(#,+&ʿ ")&ʿ $8#,&+$ (ʿ 5$," !1-$,+ʿ #8ʿ +1!)ʿ --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'ʿ #'ʿ ")&ʿ &," 8 N !$"&ʿ #8ʿ &. +",?ʿ #8ʿ ")&ʿ +$ (ʿ) 2ʿ #,ʿ <&++&-6ʿ *)&'ʿ ")&ʿ +$%&ʿ +)$--ʿ @&ʿ 2,#(1!&(ʿ "#ʿ ")&%ʿ 8#,ʿ ")$"ʿ 51,2#+&6ʿ 'ʿ %$''&,ʿ $'(ʿ "#ʿ ")&ʿ 88&!"ʿ 8#--#* '.ʿ>

A /0ʿ .ʿ #^ G /ED OD#3

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) 3 HDʿ 3 ʿ (OO EE #^ D/E

'(ʿ 8#,") * ")ʿ "#ʿ . 4&ʿ #" !&ʿ ")&,&#8ʿ "#ʿ ")&ʿ #%% ++ #'&,+ʿ #8ʿ 1+N "#%+ʿ ʿ $'(ʿ 'ʿ !$+&ʿ ")&ʿ #--&!"#,ʿ $'(ʿ #'",#--&,ʿ +)$--ʿ @&ʿ (&+ ,&(ʿ +#ʿ "#ʿ (#6ʿ $'(ʿ ")&ʿ --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'ʿ +)$--ʿ @&ʿ 2,#(1!&(ʿ "#ʿ ")&%ʿ 8#,ʿ ")$"ʿ 51,2#+&6ʿ ")&'ʿ ")&ʿ +$ (ʿ #--&!"#,ʿ $'(ʿ #'",#--&,ʿ $,&ʿ)&,&@?ʿ ,&C1 ,&(ʿ "#ʿ !&,"8?6ʿ @?ʿ '(#,+&%&'ʿ 12#'ʿ ")&ʿ --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'"6ʿ ")$"ʿ ")&ʿ 5$," !1-$,+ʿ @&8#,&ʿ %&'"#'&(ʿ)$4&ʿ @&&'ʿ +#ʿ &'"&,&(ʿ 'ʿ ")&ʿ ##:ʿ #8ʿ &. +",?6ʿ $'(ʿ '(#,+&(ʿ 12#'ʿ ")&ʿ &," 8 !$"&ʿ #8ʿ &. +",?ʿ $+ʿ $8#,&+$ (

#3/6ʿ .ʿ 77 .ʿ 27Dʿ 3 ʿ ODʿ F27 Gʿ D&HDC3ʿ # HD/32 # (>%E

<ʿ   '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ *)&'ʿ $'(ʿ +#ʿ +##'ʿ $+ʿ ")&ʿ 5$," !1-$,+ʿ #8ʿ $'? --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'ʿ @?ʿ *) !)ʿ $'?ʿ) 2ʿ #,ʿ <&++&-6ʿ #,ʿ $'?)$,&ʿ #,ʿ)$,&+ʿ ")&,&#86ʿ +)$--ʿ @&ʿ ",$'+8&,,&(6ʿ +)$--ʿ)$4&ʿ @&&'ʿ +#ʿ &'"&,&(ʿ 'ʿ ")&ʿ ##:ʿ #8ʿ &. +",?ʿ $+ʿ $8#,&+$ (6ʿ ")&ʿ +$ (ʿ --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'ʿ +)$--ʿ @&ʿ 4$- (ʿ $'(ʿ &88&!"1$-ʿ "#ʿ 2$++ʿ ")&ʿ 5,#2&,"?ʿ ")&,&@?ʿ '"&'(&(ʿ "#ʿ @&ʿ ",$'+8&,,&(ʿ $+ʿ $.$ '+"ʿ $--ʿ $'(ʿ &4&,?ʿ 5&,+#'ʿ $'(ʿ 5&,+#'+ʿ *)$"+#&4&,6ʿ $'(ʿ "#ʿ $--ʿ '"&'"+ʿ $'(ʿ 51,2#+&+6ʿ &9!&2"ʿ $+ʿ $.$ '+"ʿ +1!)ʿ +1@+&C1&'"ʿ 51,!)$+&,+ʿ $'(ʿ #,"N .$.&&+ʿ *)#ʿ +)$--ʿ 8 ,+"ʿ 2,#!1,&ʿ ")&ʿ '(#,+&%&'"ʿ "#ʿ @&ʿ %$(&ʿ 12#'ʿ ")&ʿ &," 8 !$"&ʿ #8ʿ &. +",?ʿ #8ʿ +1!)ʿ) 2ʿ #,ʿ <&++&-ʿ 'ʿ %$''&,ʿ)&,&ʿ 'B$8"&,ʿ %&'"#'&(

@"D# 2ʿ 77 .ʿ 27Dʿ "2E ODD# D#3D/DG . /ʿ 2#6 "2/DE! " /36 *26E E"277 OD 277 ZDG . /ʿ #G /E #4ʿ 3"D (D/3 . H23D .ʿ =D4 E3/6!

<ʿ   '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(6ʿ)$"ʿ *)&'ʿ $'(ʿ $8"&,ʿ ")&ʿ 5$,N " !1-$,+ʿ #8ʿ $'? --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'ʿ @?ʿ *) !)ʿ $'?ʿ) 2ʿ #,ʿ <&++&-6ʿ #,ʿ $'?)$,&ʿ #,ʿ)$,&+ʿ ")&,&#86ʿ +)$--ʿ @&ʿ ",$'+8&,,&(6ʿ +)$--ʿ)$4&ʿ @&&'ʿ +#ʿ &'"&,&(ʿ 'ʿ ")&ʿ ##:ʿ #8ʿ &. +",?ʿ $+ʿ $8#,&+$ (6ʿ ")&ʿ #--&!"#,ʿ $'(ʿ #'",#--&,ʿ +)$--ʿ @&ʿ $'(ʿ ")&?ʿ $,&ʿ)&,&@?ʿ ,&C1 ,&(ʿ "#ʿ '(#,+&ʿ ")&ʿ 5$," !1-$,+ʿ #8ʿ $'?ʿ #"> &,ʿ --ʿ #8ʿ $-&ʿ #,ʿ #")&,ʿ '+",1%&'ʿ 21,2#," '.ʿ "#ʿ @&ʿ $,$'+8&,ʿ @?ʿ ")&ʿ +$%&ʿ <&'(#,ʿ #,ʿ #,".$.#,ʿ #,ʿ <&'(#,+ʿ #,ʿ #,".$.#,+ʿ #8ʿ ")&ʿ +$%&ʿ) 2ʿ #,ʿ <&++&-6ʿ)$,&ʿ #,ʿ)$,&+ʿ ")&,&#86ʿ "#ʿ $'?ʿ #")&,ʿ 5&,+#'ʿ #,

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#,ʹ %#,&ʹ +1!)ʹ --+ʹ #8ʹ $-&ʹ #,ʹ #")&,ʹ '+",1%&'"+ʹ $+ʹ $8#,&+$ (ʹ +)$--ʹ
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+$ (6ʹ #,ʹ * ") 'ʹ) ,"?ʹ 3$?+ʹ '&9"ʹ $8"&,ʹ ")&ʹ &"1,'ʹ #8ʹ ")&ʹ +$ (ʹ) 2ʹ #,ʹ
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")&ʹ %&ʹ #8ʹ +1!)ʹ '",?ʹ $+ʹ $8#,&+$ (ʹ $'(ʹ 'ʹ !$+&ʹ '#ʹ 5&,+#'ʹ #,ʹ 5&,N
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OD. /Dʹ 2#6ʹ 3"D/ʹ 7ʹ 27Dʹ. /ʹ 3"Dʹ E2ODʹ E"27ʹ ODʹ D#3D/DG

)231/Dʹ .ʹ3"Dʹ +/ /36ʹ #^ 3D#GDGʹ # 3" Eʹ H3

+/ FE # # H2EDʹ (D/3 . ^ H23Dʹ ODʹ O E^ 72 G

TT L $ B (2CjW

&%#,$'(1%' '' ")& R ##:' #8' &. +"&,+' #8' ")& 81,")&,' %&' +# .,$'"&(6' $'('(1, '.'+1!)' %&''# #")&,' -' #8' $-&'+)$--' @&' &'"&,&(' 8#,' ")&' ,$'+8&,' #8' ")&' +$%&') 2' #,' <&++&-6' #,' ")C' +$%&')$,&' #,')$,&+' ")&,&#86' #,' 8#,' . 4 '.'")&' +$%&' &!1, "?' ")&,&#'

77E .' 27D 026' OD' C/ ^ GIHDG' 2.3D/ #3/6' 23 E3"D/' + /3E 3"2# 3" ED' 3' Z" H" DEED7E OD7 #4!' 2#G /2#E.D/E #G /EDG # (D/3. H23D' .' =D4 E3/6

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' 8' ")&' &,"8 !$"&' #8' &. +",?' #8' +1!)') 2' #,' <&++&-' +)$--' @&' 2,#(1!&('"#' ")&' #--&!"#,' $'(' #'",#--&,' #8' $'?' 5#,'' *)&,&' +)&' %$?' ")&'' @&6' $8"&,' $'?' +1!)' --' #8' $-&'+)$--')$4&' @&&'' ,&!#,(&('$'' ")&' 5#,'' "#' *) !)' +)&' @&-#'.+6' "#.&")&,' * ")' +1!)' --' #8' $-&6' !#'"$ ' '.' $' #"8 !$" #'' #8' +1!)' &!#,(6' + .'&('@?' ")&' #--&!"#,' $'(' #'",#--&,' #8' +1!)' 5#,'' $+' @&8#,&' (,&!"&(6' '' +)$--' @&' -$*81-' 8#,' ")&' #--&!"#,' $'(' #'",#--&,' #8' +1!)' #")&,' 5#,'' "#' '(#,+&' #'' +1!)' &,"8 !$"&' #8' &. +",?' X@& '.' ,&C1 ,&(' +#' "#' (#['")&' ,$'+8&,' %&''#'&(' '' +1!)' --' #8' $-&6' $'(' +1!)' #-N -&!"#,' $'(' #'",#--&,' +)$--' . 4&' #" !&' ")&,&#8' "#' ")&' #--&!"#,' $'(' #'",#--&,' #8' ")&' 5#,'' "#' *) !)' +1!)') 2' #,' <&++&-' @&-#'.+6' *)#' +)$--' ,&!#,(' ")&' +$%&' '' - :&' $''&,' $+' 8' ")&?')$(' %$(&' +1!)' 'N (#,+&%&''' ")&%+&-4&+6' @1'' '+&,'' '.' ")&' $%&' #8' ")&' 5#,'' $'' *) !)' +1!)' '(#,+&%&'' *$+' %$(&] 5,#4 (&(' $-*$?+6' ")$'' ")&' #--&!"#,' $'(' #'",#--&,' #8' +1!)' #")&,' 5#,'' +)$--' 8 ,+' . 4&' #" !&' "#' ")&' #-N -&!"#,' $'(' #'",#--&,' #8' ")&' 5#,'' "#' *) !)' +1!)') 2' #,' <&++&-' @&-#'.+' #8' +1!)' &C1 + "#'' %$(&' "#' ")&%' "#' '(#,+&' ")&' &,"8 !$"&' #8' &. +",?6' $'(' ")&' #--&!"#,' $'(' #'",#--&,' #8' ")&' 5#,'' "#' *) !)' +1!)') 2' #,' <&++&-' @&-#'.+' +)$--' ")&,&12#'' +&'(' '8#,%$" #'' "#' ")&' #--&!"#,' $'(' #'",#--&,' #8' +1!)' #")&,' 5#,"6' *)&")&,' $'?' $'(' *)$'' #")&,' --' #,' --+' #8' $-&')$4&' @&&'' ,&!#,(&(' '' ")&' ##:' #8' ")&' &. +",?' #8' +1!)') 2' #,' <&++&-' $'(' ")&' #--&!"#,' $'(' #'",#--&,' #8' +1!)' #")&,' 5#,'')$4 '.' +1!)' '8#,%$" #'' +)$--' 2,#!&&(' '' %$''&,' (,&!"&(' @?' ") +' !'' '' $--' ,&+2&!"+' "#' ")&' '(#,+ '.' #8' ")&' &,"8 !$"&' #8' &. +",?' $+' ")&?' *#1-(' (#' 8' +1!)' 5#,'' *&,&' ")&' 5#,'' "#' *) !)' +1!)' <&++&-' @&-#'.&(

+/DF IE) 3 HD' 3' OD' 4 FD# 3' '.. HD/E 23 3"D' + /3 .' =D4 E3/6

.' IC # =D' 4 E3/6' GD # F' 2#6 > 7 .' 27D E"27# 3 "2FD ODD# /DH /G^ DG!' 3"D' E2OD E"27' 3"D# OD C/ GIHDG

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' 8' '' +)$--' @&!#%&' '&!&++$,?' "#' ,&. +"&,' $'?') 2' #,' <&++&-' ' $'(' $'?')$,&' #,')$,&+' #8' +1!)') 2' #,' <&++&-' +)$--')$4&' @&&'' +#-(' + '!&' +)&' *$+' -$+'' ,&. +"&,&(6' $'(' ")&' ,$'+8&,' #8' +1!)')$,&' #,')$,&+' +)$--' '#'')$4&' @&&'' ,&!#,(&(' $'(' '(#,+&(' '' %$''&,')&,&' 'B@&8#,&' (,&!"&(6' ")&' --' #8' $-&' ")&,&#8' +)$--' @&' 2,#(1!&(' "#' ")&' #--&!"#,' $'(' #'",#--&,' #8' +' $>&+"?;+' 1+"#%+6' *)#' $,&' "#' %$:&' &. +",?' #8' +1!)') 2' #,' <&++&-6' #")&,' * +&' +1!)' $-&' +)$--' '#'' @&' '#' !&(' '' +1!)' &. +",?' ' &9!&2"' $+')&,&' 'B$8"&,' &9!&2"&(] 5,#4 (&(' $-*$?+6' ")$'' 12#'' ")&' 81"1,&' 5,#(1!"#'' #8' +1!)' --' #8' $-&6' $'(' #8' ")&' &9 +"' '.' &,N "8 !$"&' #8' &. +",?6' +1!)' ,$'+8&,' +)$--' $'(' %$?' @&' ,&!#,(&(' $'(' '(#,+&(' $+' *&--' $+' $8"&,' +1!)' &. +",?' ' $+' @&8#,&

C # ("2#4D .' +/ CD/36 =D4 E3/6' GD # F' 026' OD 4/2#3DG .' GDE /DG! 273" I4" # 3 /D\I /DG' O6 2Z

' '(->&' '' 81,")&,' &'$!"&(')$'' 8' 12#'' $'?')$'.&' #8' 5,#2&,"?' '' $'?') 2' #,' <&++&-' ")&' *'&,' #,' *'&,+' +)$--' (&+ ,&' "#')$4&' ")&' +$%&' ,&. +"&,&(' ' $-")#1.)' '#'' ,&C1 ,&(' @?' ") +' !"6' $'(' ")&' *'&,' #,' 2,#2&,' 1%@&,' #8' *'&,+' +)$--' $''&'(' $'' ")&' 1+N "#%' #1+&' $'' ")&' 5#,'' "#' *) !)' +1!)') 2' #,' <&++&-' @&-#'.+' 8#,' ")$'' 51,2#+&6' '' +)$--' @&' -$*81-' 8#,' ")&' #--&!"#,' $'(' #'",#--&,' #8' +' $>&+"?;+' 1+"#%+' $'' +1!)' 5#,'' "#' %$:&' &. +",?' Z ' #8' +1!)') 2' #,' <&++&-' $'' ")&' +$%&' 5#,"6' $'(' "#' .,$'' $' &,"8 !$"&' ")&,&#86 D ")&

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")&ʿ+&4&,$-ʿ &C1 + "&+ʿ)&,& 'B@&8#,&ʿ 'ʿ") +ʿ !"%&'" #'&(ʿ$'(ʿ(,&!"&(ʿ
@& '.ʿ8 ,+" (1-?ʿ #@+&,4&(ʿ$'(ʿ !#%2- &(ʿ * ")

ʿ '(ʿ *)&,&$+ʿ .,&$" '!#'4&' &'!&ʿ)$")ʿ $, +&'ʿ 8,#%ʿ "Z&ʿ &Bʿ (C DEʿ .ʿ
. +"&, '.ʿ 88 !&,+ʿ @& '.ʿ +&,4&(ʿ * ")ʿ 1@2#&'$+ʿ ,&C1 , '.ʿ ")&%ʿ "#ʿ
@, '.ʿ * ")ʿ ")&%ʿ $'(ʿ 2,#(1!&6ʿ #"ʿ , $-+ʿ 'ʿ #1,"+ʿ #8ʿ $*ʿ ,&-$" 4&ʿ &3/2H3Eʿ./ Oʿ
"#ʿ ")&ʿ *'&,?ʿ#8ʿ <&++&-+6ʿ #,ʿ #")&,* +&6ʿ ")&ʿ $")+ʿ #,ʿ 3&!-$,$" #'+ʿ]Eʿ .ʿ
,&C1 ,&(ʿ "#ʿ @&ʿ "$:&'ʿ @?")&ʿ *'&,+ʿ ")&,&#8ʿ 2, #,ʿ "#ʿ ")&ʿ ,&. +"&, '.ʿ =D4 E3/6ʿ
")&,&#86ʿ $'(ʿ ")&ʿ ##:+ʿ #8ʿ &. +",?6ʿ #,ʿ #2 &+ʿ #,ʿ 9",$!"+ʿ ")&,&8,#%ʿ]
'(ʿ *)&,&$+ʿ "ʿ *#1-(ʿ "&'(ʿ%1!)ʿ "#ʿ ")&ʿ 3 +2$"!)ʿ #8ʿ 1+ '&++ʿ 8B")&ʿ F GD#HD
""&'($'!&ʿ #8ʿ +1!)ʿ &. +"&, '.ʿ 88 !&,+ʿ * ")ʿ ")&ʿ +$%&ʿ 12#'ʿ +1!)ʿ
, $-+ʿ *&,&ʿ (+2&'+&(ʿ * ")ʿ>ʿ @&ʿ "ʿ ")&,&8#,&ʿ &'$!"&(6ʿ)$" ")&ʿ #-N
-&!"#,ʿ$'(ʿ #'",#--&,ʿ#8ʿ +ʿ $>&+"?;+ʿ 1+"#%+ʿ $"ʿ $'?ʿ 5#,"ʿ #,ʿ 5-$!&6ʿ
$'(ʿ")&ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ $!" '.ʿ 8#,ʿ ")&%ʿ ,&+2&!" 4&-?6ʿ +)$--6ʿ 12#'ʿ
&4&,?ʿ ,&$+#'$@-&ʿ &C1&+"ʿ @?ʿ$'?ʿ5&,+#'ʿ #,ʿ5&,+#'+ʿ *)#%+#&4&,6ʿ 2,#N
(1!&ʿ $'(ʿ &9) @ʿ 8#,ʿ) +6ʿ)&,6ʿ #,ʿ")&,ʿ '+2&!" #'ʿ $'(ʿ 9$% '$" #'ʿ
$'?ʿ $")ʿ #,ʿ 3&!-$,$" #'ʿ +*#,'ʿ #,ʿ %$(&ʿ @?ʿ $'?ʿ +1!)ʿ *'&,ʿ #,ʿ
ʿ *'&,+6ʿ 5,#2, &"#,ʿ #,ʿ 5,#2, &"#,+6ʿ $'(ʿ $-+#ʿ $'?ʿ &. +"&,ʿ#,ʿ '",?ʿ
'ʿ$'?ʿ ##:ʿ #,ʿ ##:+ʿ #8ʿ &. +",?ʿ ,&C1 ,&(ʿ @?ʿ") +ʿ !"ʿ "#ʿ @&ʿ %$(&ʿ
#,ʿ :&2"ʿ ,&-$" 4&ʿ "#ʿ $'?ʿ)2ʿ #,ʿ <&++&-6ʿ $'(ʿ +)$--6ʿ 12#'ʿ &4&?ʿ ,&$+#'N
$@-&ʿ &C1&+"ʿ @?ʿ$'?ʿ5&,+#'ʿ #,ʿ5&,+#'+ʿ *)#%+#&4&,6ʿ 2&,%ʿ) %6ʿ)&,6
ʿ#,ʿ")&%ʿ "#ʿ "$:&ʿ$ʿ #2?ʿ #,ʿ #2 &+ʿ #,ʿ$'ʿ 9",$!"ʿ #,ʿ 9",$!"+ʿ ")&,&#8ʿ
,&+2&!" 4&-?ʿ $'(ʿ ")$"ʿ ")&ʿ #2?ʿ $'(ʿ #2 &+ʿ #8ʿ $'?ʿ +1!)ʿ $")ʿ #,ʿ
3&!-$,$" #'6ʿ &. +"&,ʿ #,ʿ '",?6ʿ +)$--6ʿ 12#'ʿ @& '.ʿ 2,#4&(ʿ "#ʿ @&ʿ $ʿ
",1&ʿ #2?ʿ #,ʿ #2 &+ʿ ")&,&#8ʿ ,&+2&!" 4&-?6ʿ @&ʿ $--#*&(ʿ $'(ʿ ,&!& 4&(ʿ
$+ʿ 4 (&'!&ʿ 12#'ʿ &4&,?ʿ , $-ʿ $ʿ $*6ʿ * ")#1"ʿ ")&ʿ 5,#(1!" #'ʿ #8ʿ ")&ʿ
, . '$-ʿ #,ʿ , . '$-+6ʿ $'(ʿ * ")#1"ʿ ")&ʿ &+" %#'?ʿ #,ʿ ""&'($'!&ʿ #8ʿ
$'?ʿ #--&!"#,ʿ #,ʿ #'",#--&,6ʿ #,ʿ #")&,ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ $!" '.ʿ 8#,ʿ
")&%ʿ ,&+2&!" 4&-?6ʿ 'ʿ $--ʿ $+&+6ʿ $+ʿ 81--?ʿ $'(ʿ "#ʿ $--ʿ '"&'"+ʿ $'(ʿ 51,Bʿ
2#+&+ʿ $+ʿ +1!)ʿ , . '$-ʿ #,ʿ , . '$-+6ʿ 8ʿ 2,#(1!&(ʿ @?ʿ $'?ʿ #--&!"#,ʿ #,ʿ
#--&!"#,+6ʿ #'",#--&,ʿ #,ʿ #'",#--&,+6ʿ #,ʿ #")&,ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ
$!" '.ʿ 8#,ʿ ")&%6ʿ !#1-(ʿ #,ʿ % .)"-&.$--?ʿ @&ʿ $(% ""&(ʿ #,ʿ ,&!& 4&(ʿ 'ʿ
4 (&'!&

ʿ '(ʿ @&ʿ "81,")&,ʿ&'$!"&(ʿ)$"ʿ 8ʿ ")&ʿ)2ʿ #,ʿ <&++&-6ʿ #,ʿ ")&ʿ DEED7Eʿ /
)$,&ʿ #,ʿ)$,&+ʿ #8ʿ $'?ʿ *'&,ʿ ")&,&#8ʿ *)#ʿ %$?ʿ @&ʿ #1"ʿ #8ʿ ")&ʿ D '.N "2/DEʿE 7Gʿ
(#%6ʿ +)$--ʿ @&ʿ +#-(ʿ 'ʿ) +ʿ @+&'!&ʿ@?ʿ) +ʿ:'#*'ʿ .&'"#,ʿ #,,&+2#'(&'">ʿ # 3"Dʿ Oʿ
1'(&,ʿ) +ʿ 3 ,&!" #'+ʿ &")&,ʿ &92,&++&(ʿ#,ʿ %2- &(6ʿ $'(ʿ$!" '.ʿ8#,ʿ) +ʿ ED#HD .ʿ
'"&,&+"ʿ 'ʿ")$"ʿ &)$-8ʿ $'(ʿ +1!)ʿ .&'"#,ʿ #,,&+2#'(&'"ʿ *)#ʿ +)$--ʿ 'Z#D/Eʿ Z 3"^
)$4&ʿ &9&!1"&(ʿ$ʿ --ʿ #8ʿ $-&ʿ "#ʿ ")&ʿ 51,!)$+&,ʿ #8ʿ ")&ʿ *)#-&ʿ #8ʿ +1!)ʿ I3ʿ. /O27ʿ
)2ʿ#,ʿ<&++&-6ʿ#,ʿ#8ʿ$'?ʿ)$,&ʿ#,ʿ)$,&+ʿ")&,&#86ʿ +)$--ʿ '#"ʿ)$4&ʿ ,&N + ZD/E
!& 4&(ʿ$ʿ -&.$-ʿ 5#*&,ʿ "#ʿ &9&!1"&ʿ ")&ʿ +$%&6ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ
#%% ++ #'&,+ʿ #8ʿ +ʿ $>&+"?;+ʿ 1+"#%+6ʿ 12#'ʿ 22- !$" #'ʿ %$(&ʿ "#ʿ (3#O EE #ʿ
")&%6ʿ $'(ʿ 5,##8ʿ "#ʿ ")&,ʿ $" +8$!" #'ʿ #8ʿ ")&ʿ 8$,ʿ 3&$- '.+ʿ #8ʿ ")&ʿ 5$,N D/Eʿ O26ʿ CD/^
" &+6ʿ "#ʿ 2&,%ʿ +1!)ʿ ,$'+8&,ʿ "#ʿ @&ʿ ,&. +"&,&(6ʿ 8ʿ &. +",?ʿ ʿ @&ʿ O 3ʿ=DH /Gʿ .ʿ
'&!&++$,?6ʿ #,ʿ "#ʿ @&ʿ ,&!#,(&(ʿ $'(ʿ '(#,+&(6ʿ $+ʿ ")Cʿ $+&ʿ %$?ʿ @&6ʿ ʿ EIH"ʿ 27DEʿ /
%$''&,ʿ(,&!"&(ʿ@?ʿ") +ʿ !"6ʿ $+ʿ 8ʿ +1!)ʿ-&.$-ʿ5#*&,ʿ)$(ʿ @&&'ʿ 2,#N =D4 E3/6ʿ GDʿ
(1!&(ʿ $'(ʿ$-+#ʿ 8ʿ +)$--ʿ)$22&'ʿ ")$"ʿ $'?ʿ --ʿ #8ʿ $-&ʿ !$''#"ʿ @&ʿ # ʿ 2Eʿ 3"Dʿ
2,#(1!&(6ʿ #,ʿ 86ʿ @?ʿ 8&$+#'ʿ #8ʿ 3 +"$'!&ʿ #8ʿ %&6ʿ #,ʿ ")&ʿ @+&'!&ʿ #,ʿ (2ED / 26ʿ
3&$")ʿ #8ʿ 5$," &+ʿ !#'!&,'&(6ʿ "ʿ !$''#"ʿ @&ʿ 2,#4&(ʿ ")$"ʿ$ʿ --ʿ #8ʿ $-&ʿ /D\ I /DlIS
8#,ʿ$'?ʿ)$,&ʿ#,ʿ)$,&+ʿ 'ʿ$'?ʿ)2ʿ#,ʿ<&++&-ʿ)$(ʿ@&&'ʿ &9&!1"&(6ʿ$'(ʿ 2#Gʿ # 3"D/ʿ
&. +",?ʿ ʿ #8ʿ +1!)ʿ)2ʿ#,ʿ<&++&-ʿ+)$--ʿ)$4&ʿ @&!#%&ʿ '&!&++$,?Aʿ (2EDEʿ Z"D/Dʿ
"ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ #%% ++ #'&,+ʿ #8ʿ +ʿ $>&+"?;+ʿ 1+"#%+6 77Eʿ .ʿ 27Dʿ
12#' H2## 3ʿODʿ
C/ G IHDGN

2#3' 5,##8' "#' ")& ,' $" +8$!" #'' #8' ")& 8$,' 3&$- ' . +' #8' ")& 5$," &+6' 8(' 2&,% "' +1!)') 2' #,' <&++&-' "#' @&' ,&. +"&,&(' ' ' '' - :&' $' '&,' $+' 8' $' --' #8' $-& 8#,' ")& ,$' +8&,' #8' +1!)')$,&' #,')$,&+')$(' @&&' ' 2,#(1!&( ] 5,#4 (&(' $- * $?+6' ")$" '' $' '?' #8' ")& $+&+')&,& '' %&' N " #' &(' .##(' $' (' +188 ! &' " &!1, "?' +)$--' @&' . 4&' ' "#' 2,#(1!&' $' -&.$-' 5#* &,' #,' --' #8' $-&' * ") '' $' ,&$+#' $@-&' %&6' #,' "#' $@ (&' ")& 81"1,&' -$ %+' #8' ")& $@+&' '" * '&,6') +' & ,+' $' (' 1!!&++#,+6' $+' ")& $+&' %$?' @&' $' (' $" ")& 81"1,&' &C1&+" #8' ")& 5$,"?' *)#+&' 5,#2&,"?')$+' @&&' ' +#' ",$' +8&,,&(6' * ")#1" ")& 5,#(1!" #' ' #8' $' --' #8' $-& 8,#'') %' #,' 8,#%') +' -$ * 81-' ""#, '&?6' +1!)' #' (' +)$--' @&' 4 -$@-& 8#,' ")& 5,#"&!" #' ' #8') +' '"&,&+"6' '' $((" #' ' "#' $' '?' 5#* &,+' #,' .)"+' *) !)' - &' %$?')$4&' '' $* ' #,' C1 "?' $.$ '+" ")&) 2' #,' <&++&-6' #,' $.$ '+" ")& 5$," &+' !#' '!&, '&(6' 1 '' -')&' +)$--')$4&' ,&!& 4&(' 81--' '(&%' '"?' 8#,' $' '?' #++' #,' '>1,?' +1+"$ '&(' @?') %

DHI / 36'
OD #4' 4 FD#
3 ' C/ GIHD'
7D42' + ZD/E'
/' 20 GD
3131 /D (72 OE'

/2#E.D/' O6
Z26' .'
B /3424D

' '(' @&' '' 81,")&,' &'$!"&(')$" *)&' $'?' ,$' +8&,' #8' $'?') 2' #,' <&++&-6' #,' #8' $'?')$,&' #,')$,&+' ")&,&#86' +)$--' @&' %$(&' #'-?' $+' $' &!1, "?' 8#,' ")& 5$?%&'' #8' $' 3&@6' #,' 3&@"+6' & ")&,' @?' * $?' #8' #,".$.&6' #,' #8' ++ . '%&'' "#' $' ,1+"&&' #,' ,1+"&&+' 8#,' ")& 51,2#+&' #8' +&-- ' .' ")& +$%&' 8#,' ")& 5$?%&'' #8' $'?' 3&@' #,' 3&@"+6' ")& '' $' (' '' &4&,?' +1!)' $+&' ")& #--&!"#,' $' (' #'',#--&,' #8' ")& 5#,' *)&,&' ")&') 2' #,' <&++&-' +' ,&. +"&,&(' +)$--6' '' ")&' - ",?' '' ")&' ##:' &. +",?6' $' (' $-+#' '' ")&' '(#,+&%&'' #'6' ")&' &," 8 !$"&' #8' &. +",?6' '' %$' '&,')&,& 'B@&8#,&' (,&!"&(6 +"$"&' $' (' &92,&++' ")$" +1!)' ,$' +8&,' *$+' %$(&' #'-?' $+' $' &!1, "?' 8#,' ")& 5$?%&'' #8' $' 3&@' #,' 3&@"+6' #,' @?' * $?' #8' #,".$.&6' #,' "#' ")$" 88&!"' $' (' ")& 5&,+#' #,' 5&,+#' +' "#' *)#%6' +1!)' ,$' +8&,' +)$--' @&' %$(&6' #,' $'?' #")&,' 5&,+#' #,' 5&,+#' +' !-$ % ' .' 1 '(&,') %' #,' ")&%' $+' $' #,".$.&&' #,' #,".$.&& 6' #,' $' ,1+"&&' #,' ,1+"&&+' #'-?6' +)$--' '#" @?' ,&$+#' '' ")&,&#8' @&' (&&%&(' "#' @&' ")&' * '&,' #,' * '&,+' #8' +1!)') 2' #,' <&++&-6')$,&' #,')$,&+' ")&,&#8' '#,' +)$--' ")&' 5&,+#' #,' 5&,+#'+' %$: '.' +1!)' ,$' +8&,')& (&&%&(' @?' ,&$+#' ")&,&#8' "#')$4&' !&$+&(' "#' @&' $'' * '&,' #,' * '&,+' #8' +1!)') 2' #,' <&++&-6' $'?' %#,&' ")$'' 8' "#' +1!)' ,$' +8&,6')$(' @&&' %$(&' &9!&2" +#' 8$,' $+' %$?' @&' '&!&++$,?' 8#,' ")& 51,2#+&' #8' ,&' (&,' .' ")&') 2' #,' <&++&-6')$,&')$,&+' +#' ,$' +8&,,&(6' 4 -$@-& @?' $-&' #,' #")&,' * +&' 8#,' ")& 5$?%&'' #8' ")& 3&@' #,' 3&@"+' 8#,' +&!1, "?' .' ")&' 5$?%&'' #8' *) !)' +1!)' ,$' +8&,')$+' @&&' %$(&

B /3424DD'
3' 3 ' OD'
GDD ODG' 2#
' Z#D/

/2#E.D/E' .'
" CE' . /'
DHI / 36' .'
* DO3E' OD #4'
/D4 E3D/DG'
= 4"3E' .'
B /3424DD'
3' 2..DH3DG'
O6' 2#6' H3' .'
#] / IC3H6
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5-$!&+' *") '' ")&' % "+' #8' ")&' #%2$'?;+')$,"&,6')$4 '.' O 3E' .
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) 2+6' +)$--6' 12#'' +1@+&C1&''' %2#,"$" #'' '"#' ")&' V' "&(' D '.(#%' $-"$ #,'
(,&!"' 8,#%' ' #,' " ' @&' -$@-&' "#' ")&' +$%&' 31" &+' $+' ")&' O/2732/!'
- :&' H##(+' *#1-(' ,&+2&!" 4&-?' @&' -$@-&' "#' 8' %2#,"&(' (,&!"' 8,#%
+#%&' 5-$!&' * ") '' ")&' % "+' #8' ")&' +$ (')$,"&,

' '(' *)&,&$+' @?' ")&' #'+#- ($" #'' #8' ")&' (88&,&''' ,$'!)&+' '' HH I#3'
#8' ")&' 51@- !' &4&'1&6' $'(' #8' ")&' +&4&,$-' 31" &+' 2$?$@-&' #'' ")&' .'3"D'
%2#,"$" #'' #,' 92#,"$" #'' #8' H##(+6' E$,&+6' $'(' &,!)$'(L&6' $'(' O I#3' .'
")&' 22,#2, $" #'' ")&,&#86' $+' (,&!"&(' A@?' ")&' +&4&,$-' !"+' '' 8#,!&' "D/DG 32/6'
'' . ' ")&')&,&("$,?' $'(' "&%2#,$,?' &4&'1&+' #8' ")&' ,#*' =DFD#IDE' .'
#8' 1@+ (&+ #8' #''$.& $'(' 5#1'($.&6' $'(' #8' #")&, 31" &+' 12#'' 3"D' (/ Z#' 3'
H##(+6 OD']DC3' EDC2/23D

TQ ʾ L ʾ ʾ B ʾ ʾ (2C VT

H##(+6 E$,&+6 $'(&,!)$'(L&6 $, + '. '. ʾ$,& '#" '#*ʾ :&2"
(+" '!" $'(+&2$,$"& $" ")& +&4&,$- 88 !&+6 @1")$4& @&!#%& @-&'(&(
* ")ʾ #")&,ʾ 31" &+ #8 1+"#%+ $'(#''$.&6 @#") ʾ ")& #--&!"#"
$'(22,#2, $"#' ")&,&#8] '(*)&,&$+ " + &92&(&'" ")$" 5,#N
4 + #' +)#1-(@& %$(& 8#,ʾ $+!&,"$ ' ' . ")& $''1$- %#1'" #8 *)$"
+1!)ʾ)&,&("$,? &4&'1&+ *#1-( )$4& 2,#(1!&(' !$+& ")& +$%&
)$('#" @&&' B+# !#'+#- ($"&(6 $'(")$" $' !!#1'" +)#1-( )&,&$8"&,ʾ
@& :&2" #8+1!)ʾ $''1$- %#1''ʾ @& ")&,&8#,& &'$!"&(ʾ)$" 8,#%
$'($8"&,ʾ ")& +$ (,+" 3$? #8 *" ʾ ")& #,(.)ʾ ,&$+1,&,ʾ
#,ʾ #%% ++ #'&,+ #8 + $>&+"?;+ ,&$+1,? #8 ")& V' "&(D '.(#%
#8 ʾ(ʾ$'(ʾ 8#,ʾ ")& %& @& '.6 #,ʾ $'?),&& #,ʾ
%#,& #8 ")&%6 +)$-- !$1+& "# @& 2,&2$,&($'(:&2" $" !!#1'"
#8 *)$" +1!)ʾ)&,&("$,? &4&'1& $, + '. ' . ʾ *#1-( )$4&
$%#1''&("# ' !$+& ")& +$%&)$('#" @&&' $'(*$+ '#" !#'+#- ($"&(
$'(!#--&!"&(* ")ʾ #")&,ʾ 31" &+ #8 1+"#%+ $'(#''$.& ' ")&
#--&!"#" $'(22,#2, $"#' ")&,&#86 ' +1!)ʾ $''&,ʾ $'(#,%ʾ $+
+)$-ʾ $22&$,ʾ "# ")& +$ (#,(.)ʾ ,&$+1,&,ʾ #,ʾ #%% ++ #'&,+ #8
+ $>&+"?;+ ,&$+1,? 8#,ʾ ")& %& @& '.ʾ @&+" $($2"&("# $+!&,"$ '
+1!)ʾ %#1''ʾ *) !)ʾ !!#1'" ")& +$ (#,(.)ʾ ,&$+1,&,ʾ #,ʾ
#%% ++ #'&,+ 8#,ʾ ")& %& @& '.ʾ $,&)&,&@? ,&C1 ,&("# %$:& #1"
#,ʾ !$1+& "# @& %$(& #1" $'(-$ (@&&#,& 5$,- $%&'"6 "#.&")&,ʾ * ")ʾ
")& 51@- !ʾ !!#1'"+ (,&!"&("# @& -$ (@&&#,& 5$,- $%&'"6 21,+1$'"
"# ")& 5,#4 + #'+ #8 ")& +&4&,$- !"+ 8#,ʾ (,&!" '.ʾ 51@- !ʾ !!#1'"+
"# @& -$ ($''1$--? @&&#,& 5$,- $%&'"

) 3ʾ3 ʾ2..DH3ʾ
3"D "D/DG ʾ
#% 72#G!ʾ

ʾ 5,#4 (&($-*$?+6 $'(@& " 81,")&,ʾ &'$!"&(6)$" '#") '. '
!#'"$ '&(+)$-- &9"&'(#,ʾ @& !#'+",1&("# &9"&'("#
'7 $-"&,ʾ ")&)&,&("$,? &4&'1& #8 + $>&+"?6 + & ,+ $'(1&6
!&++#,+6 ' ʾ#,ʾ #")&,ʾ &4&'1&+ ")&,& .,$'"&("# + -$"&
$>&+"? D '. ʾ")& &!#'((1, '. + 8&6 $'(,&+&,4&("#
+ 2,&+&'" $>&+"? (1, '. + 8& @? $' !" 2$++&(' ")& ,+"
&&$,ʾ #8 + 2,&+&'" $>&+"?;+ & .'6 @1" ")& +$%&6 $'(")& 4 -
+"$@- +)%&'" 2$?$@-& #1" #8 ")& +$%&6 +)$-- !#'' '1& "# @& 2$ ('6
- :& $''&,ʾ $+)&,&"#8#,&6 $'? ") '. ' ") + !" !#''"$ '&("# ")&
!#'",$,? '#"* ")+"$'('.

* I3 DEʾ3 ʾODʾ
C2 Gʾ #3 ʾ3"Dʾ
&H"D\ID/!ʾ
2#G H2// DG
3 ʾ3"D (#^
E 7 G23DG
AI#G

ʾ '(@& "81,")&,ʾ &'$!"&(6)$" $-- ")& #' &+ $, + '. @?
")& 31" &+ %2#+&(@? ") + !" X")& '&!&++$,?)$,.&+ #8 ,$ + '.
$'($!!#1'" '. 8#,ʾ ")& +$%& &9!&2"&([+)$-- 8,#% %& "# %& @&
2$ ('"# ")& &!& 2" #8 + $>&+"?;+ 9!)&C1&,ʾ ' ʾ(ʾ
$'(+)$-- @& !$,, &("# $'(%$(& 5$," #8 ")& #'+#- ($"&(1'(#8
")& V' "&(D '.(#% #8 ʾ(ʾ$'(ʾ&9!&2" #'-? $+
@? ") + !" + +2&! $--? 2,#4 (&(6 $'(+)$-- @& $22,#2, $"&(' - :&
$''&,ʾ $'("# ")& +$%& &,4 !&+ $+ ")& 31" &+ @? ") + !" ,&2&$-&(
*#1-( )$4& @&&' 8 ") + !")$('#" @&&' 2$++&(

* I3 DE GIDʾ
OD. /D E3*26ʾ
. DC3D# OD/!ʾ
7DF DG 2.3D/ʾ
3"23 *26! 3 ʾ
OD GDD O DG
* I3 DE I#GD/

< ʾ '(@& "81,")&,ʾ &'$!"&(ʾ)$" $-- #' &+ $, + '. 8,#% $'?
31" &+ #8 1+"#%+6 #,ʾ $'? ,,&$,+ ")&,&#86 +)$-- @& ,$ +&(6 -&4 &(6
!#--&!"&(6 2$ (6 #,ʾ ,&!& 4&(8,#% $'($8"&,ʾ ")& +$ (,+" 3$? #8
*" ʾ8#,ʾ #,ʾ #' $!!#1'" #8 $'? H##(+6 E$,&+6 #,ʾ &,!)$'(L&
*)$"&4&,ʾ %2#,"&(#,ʾ @,#1.)" '"# ")& V' "&(D '.(#% #8 ʾ
(ʾ$'(ʾ #,ʾ &92#,"&(8,#% ")& +$ (V' "&(D '.(#%6 #,
@,#1.)"

@,#1.)"# #,' !$,, &(' #$+"* +&' #,' 8,#%' 5#,"' "#' 5#,"' * ") '' ")&' V' "&(' ")+' H3!' 2#G'
D '.(#%6' $-")#1.)' ")&' %#1'"' #8' ")&' +$ (' 31" &+' %$?')$4&' @&&'' 2CC/ C/ 23DG'
!#%21"&(' $'(' $+!&,"$ '&(' $+' +1!)' 31" &+')$4&' @&&'' !#%21"&('
$'(' $+!&,"$ '&(' @&8#,&' ")&' +$ (' ,+"' 3$?' #8' " ' $'('
$-")#1.)' ")&' H##(+6' E$,&+6' #,' &,!)$'(L&' *)&,&#'' $'?' +1!)'
31" &+' #8' 1+"#%+' %$?')$4&' @&&'' !)$,.&(' #,' %$?' @&' !)$,.&(' %$?'
)$4&' @&&'' %2#,"&(' '"#' #,' &92#,"&(' 8,#%' ")&' V' "&(' D '.(#%'
@&8#,&' ")&' +$ (' ,+"' 3$?' #8' *" ' $'(' $-")#1.)' $'?' 31" &+' #8'
1+"#%+' (1&' $'(' 2$?$@-&' #,' !)$,.&(' #,' !)$,.&$@-&' ")&,&#'' %$?'
)$4&' @&&'' +&!1,&(' @?' #'(' #,' #")&,* +&' #'' #,' @&8#,&' ")&' +$ (' ,+"'
5P B' *" ' +)$--' 8,#%' $'(' $8"&,' ")&' +$ (' ,+"' 3$?' #8' *" '
@&' $22,#2, $"&(' $'(' $22- &(' '' - :&' $''&,' $'(' "#' ")&' +$%&' 51,2#+&+'
$+' ")&' 31" &+' #8' 1+"#%+' @?' ")+' !" .,$'"&(' $,&' (,&!"&(' "#' @&'
$22,#2, $"&(' $'(' $22- &(6' &9!&2"' $+' +' '' ")+' !" 2,#4 (&(6' $'?' !"
#,' !"+' #8' 5$,- $%&''6' $*6' V+$.&6' #,' 1+"#%' "#' ")&' !#'",$,?' '#"N
* ")+"$'('.'' $'(' ")$"' $--' #' &+' $, + '.' @?' $'?' #8' ")&' &4&'1&+'
#8' 1+"#%+')&,&$8"&,' "#' @&' 2$ (' #,' $--#*&(6' &")&,'B12#'' #'(' #,'
#")&,* +&6' &")&,' @?' *$?' #8' 3,$*@$!:6' #1''?6' &," 8 !$"&6' 5,&N
% 1%6' #,' --#*$'!&6' #,' @?' $'?' #")&,'-&.$-' 3#!1%&''*)$"&4&,6' 8,#%'
$'(' $8"&,' ")&' +$ (' ,+"' 3$?' #8' " ' $-")#1.)' ")&' %#1''#8'
")&' +$%&' +)$--')$4&' @&&'' !#%21"&(' $'(' $+!&,"$ '&(' '' - :&' $''&,'
'' *) !)' ")&?')$4&')&,&"#8#,&' @&&'' 1+1$--?' !#%21"&('$'(' $+!&,"$ '&('
#,' +)$--')$4&' @&!#%&' (1&' @&8#,&' ")&' +$ (' ,+"' 3$?' #8' *" '
+)$--' $'(' %$?' @&' 2$ ('#,' $--#*&(' '' - :&' $''&,' @?' ")&' 2,#2&,' 88 !&,'
#,' 88 !&,+' #8' ")&' 1+"#%+' #1"' #8' $'?' #' &+' '' ")&,' $'(+' $, + '.'
8,#%' ")&' 31" &+' #8' 1+"#%+' ,&+2&!" 4&-?

<' '(' @&' "' 81,")&,' &'$!"&(6')$"' ")+' !" %$?' @&' $-"&,&(' H3' O 26' OD'
4$, &(6' #,' ,&2&$-&(' @?' $'?' !" #,' !"+' "#' @&' 2$++&(' ''U') +' 2,&+&''' 273D/DG' #3" E'
&++ #'' #8' 5$,- $%&''' DEE #

3PQ % ' L B ' ' (2C VT

3V ' ' V ' E 3

' , #& ' #8'")&' 6 ' #8'$ ' 2$?$@-&' #'' H##(+6' E$,&+6' $'('
&,!)$'(L&' %2#,"&(' '"#'")&' V' "&(' D '.(#%'8,#%' #,& .'' 5$,"+6'
$'('#8'")&' 3,$*@$!:+' "#' @&' $--#*&(' #'' ")&' 92#,"$" #'' #8' +1!)'
H##(+6' E$,&+6' $'(' &,!)$'(L&

)@ =* 31"?

'

!&"#1+' !(' ' < '&.$,
!#,'+' ' &&(
.$"&+'#,' #,'&-$'+6' B' ' 8#,'&4&,?' 7'#8'")&' <$-1& ' '
B f f '+&"6' ' ' ' 8#,'&4&,?' F'#8'")&' <$-1& / ' '
-:$-6' '#'' @& '.' $, --$6' # N
' NM ' $'?' ," !-&' !#'"$ ' '.' #($'#,' '&,$-' -:$-6' *)&,&#8
'&,$-' -:$-' +' ")&' %#+'' 4-1@-&' 5$,"6
X+1!)' -:$-' '#'' @& '.'#")&,* +&' 2$," !1B
-$,-?' !)$,.&(' * ")' 31"?[6' # N
BBBBBBBBBBB 8' '#'' !#'"$ ' '.'$' .,&$"&,' 5,#2#," #'' #8'+1!)
-:$-' ")$'' / ' 2&,' &'"1%6' ' ")&' !*" ' ' Q
B B B B B ' 8' !#'"$ ' '.' %#,&' ")$'' / ' 2&,' &'"1%' $'(
' '#'' &9!&&('.' /0' 2&,' &'"1%' #8' +1!)
-:$-6' ' B' ' B' ")&' !*" ' 0'
a BBBBBBBB 8' !#'"$ ' '.' %#,&' ")$'' /0' 2&,' &'"1%' $'(
'#'' &9!&&('.' ' 2&,' &'"1%' #8' +1!)
-:$-6' B' B' B' B' ")&' !*" ' ' Q
BBBBBBBB B 8' !#'"$ ' '.' %#,&' ")$'' ' 2&,' &'"1%' $'(
'#'' &9!&&('.' Q ' 2&,' &'"1%' #8' +1!)
-:$-6' B' ' ' ' ")&' !*" ' Q
' ' ' f ' 8' !#'"$ ' '.' %#,&' ")$'' Q ' 2&,' &'"1%' #8
+1!)' -:$-6' ' ' ")&' !*" ' '
BBBBBBBBB '$"1,$-' -:$-6' %2#,"&(' 8,#%' 5-$!&+' * ") '' ")&' % "+
#8' ")&' $+'' '($' #%2$'?;+')$,"&,' ' ")&' !*" ' /'
-:$'&'' ##'' ' ' ' ' ")&' !*" ' /'
-%#'(' 5$+"&' ' ' 8#,'&4&,?' F'#8'")&' <$-1& ' '
-%#'(+6' # N
f ' ""&,' B B B B B ' B' ")&' !*" ' Q'
B R#,($'' ' B' B' B' ")&' !*" /' '
G B' BBBB#8' $'?' #")&,' #,'' ' ' ' ")&' !*" '
-#&+' ' ' a B' B' ")&' -@ ' '
BBBBBB")&' 5,#(1!&' #8'$'(' %2#,"&(' 8,#%' $'?' , " +)' 5#++&++ #'6
")&' -@ ' ' /
-1'$' B' B' B B B B B ' ")&' !*" ' '
BBBBBB' #!)' B' B' B' B' B' B' ")&' !*" ' '
%@&,6' #1.)' B' B' B' B' ")&' -@ ' '
BBBBBBBBB $'18$!"1,&+' #8' %@&,6' '#'' #")&,* +&' &'1%&,$"&(' #,
(&+!, @&(' B' B' B' ")&' -@ ' /'
%@&,.., +' B' B' B' B' ")&' #L ' '
'!)#4 &+' B' B' B' B' ")&' -@ ' ' /
'.&- !$' B B B B B B ' ")&' !*" ' Q'

B (2C VT TQ

E 3 31"?

' '#""#' B	")&' ! * "	U		U
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,&' B' B' B	")&' #'	U		U
G ,1(& B'	")&' ! * "	U	Q	U
&.1-1+' B	")&' #*"	U	T	U
22-&+' a a	")&' 1+)&-	U		U
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C1$8#," +'	")&' ! * "	U		E
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, +"#-#!) $' B	")&' -@	U	U	U
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")&' 5,#(1!&' #8'$' (' %2#,"&(' 8,#%' $' ?' , " +)' 5#++&+B				
+ #' '	")&' ! * "	U		U
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KBBBBBBB #$26' E &&(6' $' (' E ##(	")&' ! * "	U		Q
BBBBBBBB' #'" #")&, * +&' &' 1%&,$"&(' #,' (&+!, @&(				
8#,' &4&,?' - R' #8'	")&' <$-1&	U	U	U
+2)$-"1%' B' B'	")&' ! * "	U		U
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' G' $2 4' B' B' B	")&' ! * "	U		U
BBBBBBBBB 5&,1' B' B'	")&' -@	U		U
G G' .$' B' B' B	")&' -@	U		U
$' (' 81,")&,' $+' #,& . ' ' 2 , "+' B' 8#, &4&,?' H$--#'			U	U
#-1	")&' -@	U		U
BBBBB G' $-%'#8' H -&$(6' $' (' $--' $-+$%+' ' #'" #")&, * +&' &' 1%&B				
,$"&(' #,' (&+!, @&(	")&' -@	U		T
$' (+", ' .' * +"6' ")&' 3#L&' ' D' #"+6' &$!)' D' #'" !#' "$ ' ' .				
' $, (+'		U	V	U
$, --$' B' B' B' B' O B'	")&' #'		U	U
$, : 6' '				
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B' B' B' %2#,"&(' 8,#%' $' ?' , " +)' 5#++&++ #' B'	")&' ! * "	U	U	
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G G' #8'#")&,' #,"+' B' B' B' B B'	")&' -@	U	U	
G G' 9",$!" #86' #,' #8' #")&,' <&.&"$@-&' 1@+"$' !&+' "#' @&' 1+&(				
#' -?' 8#,' "$' ' ' .' &$")&, B'	")&' ! * "	U		U
B' B' B' %2#,"&(' 8,#%' $' ?' , " +)' 5#++&++ #' B'	")&' ! * "	U	U	
$,' E ##(' B' B' B	")&' #'	U	V	U
$+ : &'" #(+6' ")&' 1' (-&' X' #'" &9!&&(' .'),&&' &&'" ' ' ,B				
!1%8&,&' !&' $'" ")&' $' ([		U		U
$+ : &"+' B' B' B' 8#,' &4&,?' F' #8'	")&' <$-1&	U	U	U
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)@ =* * I36

$+" #, ",$* $-+ #, #''&"+ ($"+ ,
BBBBBB5-$"" '.6 #, #")&, $'18$!"1,& #8 $+" #, ",$*6 8#,
O2] #4 >23E / ##D3E (+7233 #4
&$(+6
BBBBBBBB %@&, B B á á ")& -@ U U
BBBBBBBB 2 2 B 8#, &4&,? - k #8 ")& <$-1& U U U
BBBBBBBB #,$- B B B B ")& -@ U V U
BBBBBBBB ,?+"$- B ")& 6 Q T
,D3 3"D 7O U
BBBBB G '#" #")&,* +& &'1%&,$"&(#, (&+!, @&(6
8#, &4&,? - k #8 ")& <$-1& U U U
&$'+6 D ('&? #, ,&'!) &$'+ B á B ")& 1+)&- U U U
&&86 +$-"&(X'#" @& '. !#,'&(&&8[B B ")& !*" U U
&&8 E ##(6 1'%$'18$!"1,&(6 %2#,"&(8,#% &* #1") E $-&+6
")& #' U V U
&&,6 4 L
BBBBB 1% B B B ")& $,,&-6 !#'"$ ' '. ?C H$--#'+
f C/IHD 3"D 2//D7! H #32 # #4 277 #E T U
/ 7D .277 3"D/ /3E! 3"D 2//D7 H #32 # #4 277 #E U
D#52O # / D#d # 3"D!HZ3 U U
D// DE! F d
26! ,I# CD/! -D77 Z! 2#G 2#6 3"D/ /3 # 3 3"D/^
Z ED D#IO D/23DG 3"DHZ3 U U
/GE! F d #4 #4 /GE 3"D * dD# U Q U
3IO D# ,IG2 HIO 3"DHZ3 U U
72H] #4 H H ! H 3"D HZ3 U
72GGD/E 3"D * dD# U U T
7IOOD/ (/2 # ' 7!! # ' 7
#'&+ #8 $""-& $'(#")&, ' %$-+6B $'(#8 +)6 &9!&2" E)$-&
'+6 *)&")&, @1,'" #, '#"6 #, $+ ' %$-)$,!#$-6
8#, &4&,? - k #8 ")& <$-1& U U
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\ BBBBB @& '. #8 ("#'+ 2, '"&(2, #, "# ")& &$, 6 @#1'(
/ IO I#G 3"D HZ3 U U
f f OD #4 . G 3 #E C/ #3DG # / E #HD 3"D -D2/ QU !
O I#G / IO I#G 3"D HZ3 V U U
* f A / 3"D * DEH/ C3 # .]E C/ " O 3DG 3 'OD
OC /3DG! EDD 3"D H3 . / 3"D =D41723 # . 3"D
(IE3 OE! 2#G H3E . / EDHI/ #4 (C6/ 4"3E
3E! " DE! 2#G (272E"DE! ')
]BBBBBBBBB E #%&';+ ##"+ $'($-$+)&+ B ")& 3#L&' 5$,+ U U
B B G 8- '&(#, ", %%&(* ") 1, #, #")&, , %% '.6
3"D * dD# +2 /E T U
BBBBBBBBB E #%&';+)#&+6 * ") #,: #, (#1@-& #-&+6 C1 -"&(
)#&+ $'(-#.+ B B B ")& 3#L&' 5$,+ T U
B B G 8 ", %%&(#, - '&(* ") 1, #, $'? #")&,
, %% '. B B B B ")& 3#L&' 5$,+ U
MMM E #%&';+)#&+ #8 -:6 $" '6 R&$'+6 #, #")&, "188+6
D (6 #,#!!#6 #, #")&, &$")&, B ")& 3#L&' 5$,+ U Q U
BBBBBBBB 8", %%&(#, - '&(* ") 1, #, #")&, , %% '.6
")& 3#L&' 5$,+ U
(" 7G/D#aE 3E! " DE! 2#G (272E"DE! # 3 D&HDDG #4
&4&' '!)&+ ' &'.")6 "# @& !)$,.&(* ") *#
) ,(+ #8 ")& $@#4& 31" &+
* 66 &';+ ##"+ B ")& 3#L&' 5$,+ U

; ; B ' ' (2C'VT TQ

3E!' H !' +) "
& ' B D#aE' " DE' ' % j' 3"D' * dD#' +2 /E ,
' (" 7G/D#aE' 3E'2#G' " DE!'# 3'D&HDDG #4' DFD#' #H"DE
#' D#43"!' 3 ' OD' H"2/4DG' Z 3"' Z ' " /GE' .' 3"D'
2O FD' * I 3 DE
/2H H' H G' ' 3"D' HZ3 U ,
/2&' /' #H27' 3"D' HZ3 ' U U
' /D. #DG 3"D' HZ3 U U U
#""-&+6' '
MBBBBBBBB#8' $,")' #,' "#'&6' &%2"?' B' B' ")&' 3#L&' U -
BBBBBBBBB$'(' 81,")&,6' 81--' #,' &%2"?' B' ")&' !*" U V ,
BBBBBBBBB#8' H-$++' !#4&,&(' * ")' E !:&,6
")&' 3#L&'' T1$,"+' #'"&'" 4 ,
B' B' B' B' $'(' 81,")&,' B' B' B' B' ")&' !*" U ,
GBBBBBBBB#8' H,&&'' #,' #%%#'' H-$++6' '#"' #8' -&++' #'"&'"' ")$'
'&' 5 '"6' $'(' '#"' @& '.' 5) $-+6' &%2"?6
")&' 3#L&'' T1$,"+' #'"&'" U ,
BBBBBBBBB#8' H,&&'' #,' #%%#'' H-$++6' 81--6' !#%21" '.' $--' #""-&+
#8' '#"' .,&$"&,' #'"&'"' ")$'' $-8' $' 5 '"' $+' #8' ")&'
#'"&'"' #8' $-8' $' 5 '"6' $'(' $--' #""-&+' #8' .,&$"&,'
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BBBBBBBBB %2#,"&(' 8,#%' $'?' , "+)' 5#++&++ #'6
")&' 3#L&'' T1$,"+' #'"&'" , ,
BBBBBBBB %2#,"&(' 8,#%' $'?' #,& .'' 5-$!&6' '
B' B' B' B' !#'"$ ' '.' E '&' #,' 2 , "+6
")&' 3#L&'' T1$,"+' #'"&'" U ,
BBBBBBBBB'#"' !#'"$ ' '.' E '&' #,' 2 , "+6
")&' 3#L&'' T1$,"+' #'"&'" U - U
BBBBBBBBB #8' H-$++6' '#"' #")&, * +&' &'1%&,$"&(' #,' (&+!, @&(6
8#,' &4&,?' 7' #8' ")&' <$-1& V , U
B' G ' B' $'(' 81,")&,' á B' á ")&' !*" , U
H G -$+:+' '' *) !)' E '&' #,' -' +' %2#,"&(6' $'(
H-$++' #""-&+' #,' -$+:+' '' *) !)' '&,$-' #,'
$"1,$-' E $"&,' +' %2#,"&(6' $,&' '#"' +1@>&!"'
"#' 31"?
#9&+' #8' $--' #,"+' B' B' 8#,' &4&,?' - ' #8' ")&' <$-1& U U U
#9' E ##(' B' B' ' ' B' B' ")&' #' V U U
BBBBBBBBBBBBBBB ")&' 5,#(1!&' #8' $'(' %2#,"&(6' 8,#%' $'?' , "+)
5#++&++ #'' B' B' B' ")&' #' U U
,$++6' '
BBBBBBBBB' $'18$!"1,&+' #86' '#"' #")&, * +&' &'1%&,$"&(' #,' (&+!, @&(6
8#,' &4&,?' - k' #8' ")&' <$-1& U U U
BBBBBBBBB5#* (&,' #86' 8#,' R2'' ' .' B' B' ")&' -@ U T
,$L -' E ##(' B' B' B' B' B' ")&' #' U U
,$L --&""#' E ##(' B' B' B' B' ")&' #' U T
G' %2#,"&(' 8,#%' $' , "+)' 5#++&++ #'' B' ")&' #' U U
/ H]E' /' (7 #]D/E' ' 3"D' !UUU' T
/ O E3 #D 3"D' HZ3 ' U U T
/D. #DG' /' #' = 77E 3"D' HZ3 ' U T U
#' A7 I / 3"D' HZ3 U
/ E37DE!' '
/ I 4"!' 2#G' #' 3"D' I .3E!' 2#G' # 3' #' 2#6' Z26' E /3DG!
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Q' B

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/ E37DE! % E
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K ")&) .)&, 31"?
/ H2GD . 7G / 7FD/ . / DFD/6 7' '7 . 3"D 27 I D U U U
/ #dD! 27 @ /] E . / 3 O 2GD . / #dD 3"D DZ 3
f + ZGD/ . / DFD/6 UU< . 3"D 27 I D V U U
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#, -4&,6 #, #8 *) !) ")& %$ #, 5$," <$-1& + H#-(#,
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(2O7DE! # 3 OD #4 / # (2O7DE! 32#] DG / I #32//DG 3"D HZ 3 U U
3 OD #4 / # (2O7DE! # 2H3 I 27 ED . 2 / 3 E" " C!
2#G OD #4 . 3 2#G #DHDEE2/6 . / E I H" " C! 2#G
3 / I #3 7 3"D Z ED G EC EDG . ,&&
f .! 2#G Z "D#! 3"D/Z ED G EC EDG .!
. / DFD/6 UU< . 3"D 27 I D U U U
(2 0 O/ HE #D#
(2 0 O 7D A7 Z D/E 3"D 7O U U
(2 0 C" / 3"D HZ 3 U U
/ D. #DG 3"D HZ 3 - U U
(2 0 Z G 3"D # U V U
(2#G7DE!
CD/ O 2HD3 3"D 7O U T
f f 277 Z 3"D HZ 3
@ 2& 3"D 7O U T
(2#G7DZ H] 3"D HZ 3 Q Q
(2##D772 7O2 3"D 7O U U
(2#DE!
2 0 O 3"D !UUU U V U
= 2332#E! # 3 4/ I #G 3"D !UUU U V U
= DDG (2#DE 3"D !UUU U V U
f @ 27] #4 (2#DE / 3 H] E! O I #3DG! C2 #3DG! / 3"D/^
Z ED /#2 0 D#3DG . / DFD/6 UU< . 3"D 27 I D U U U
; @ "2#4DDE! , I O O ! / I #G = 2332#E! * /24 #Æ 7 G!
2#G 3"D/ @ 27] #4 (2#DE / 3 H] E á 3"D !UUU U V U
(2#3"2/ GDE 3"D O U U
(2 I 3H" I H H 3"D HZ 3 U U
(2CD/E! #H7 I G #4 3"D + H] 7D H H H 3"D 7O U U T
(2CE H I O (+DCCD/
(2/G2 0 O E H H H 3"D 7O U U
f &3/2H3 / +/DC2/23 # . (&3/2H3
(2/GE! +726 #4 (2/GE 3"D * dD# +2H] E U U
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BBBBBBBB2-$ 'ˁ Bˁ Bˁ 8#,ˁ &4&,?ˁ Fˁ #8ˁ ")&ˁ <$-1& 0 U U
BBBBBBBˁ 2$ '"&(6ˁ . -"6ˁ #,ˁ #,'$%&'"&(
8#,ˁ &4&,?ˁ Fˁ #8ˁ ")&ˁ <$-1& U U U
) 26ˁ $'18$!"1,&,+ˁ #86ˁ "#ˁ %$:&ˁ $"+ˁ #,ˁ #''&"+ˁ ˁ 5-$"" '.
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''$%#'ˁ Bˁ Bˁ Bˁ ")&ˁ -@ U U
B ˁ %2#,"&(ˁ 8,#%ˁ $'?ˁ , " +)ˁ 5#++&++ #'ˁ Bˁ ")&ˁ -@ U U
",$"ˁ #8ˁ %&ˁ Bˁ á á aˁ ")&ˁ -@ U U /
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",#'ˁ 2,&+&,4&(ˁ * ")ˁ $-"ˁ Bˁ 8#,ˁ &4&,?ˁ Fˁ #8ˁ ")&ˁ <$-1& QU U U
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",#'ˁ E $"&,ˁ ˁ 2 , "+
4&"ˁ Bˁ á Bˁ ")&ˁ #L U I
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-#4&+ˁ Bˁ Bˁ á á á á ")&ˁ -@ U
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#!#$' B' B' á B' á Ơ ")&' -@ U , .
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+#'' B B B B B ' ")&' -@' U , -
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M' M %2#,"&(' 8,#%' $'?#")&,' 5-$!&' * ") '' ")#+&' % "+6' ")&' -@' U U
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,' #2&6' * '&6' $'(' ",$'(+' B' B' B' ")&' !*" U V U
BBBBB #-(6' $'(' 8'' #'-?' "#' @&' %$(&' '"#' $"+' B' ")&' #' U V
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#-1%@$' ##'' B' B' B' B' ")&' -@ U U
#%8 "+' B' B' B' B' ")&' -@ U U
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$--' $+'' #22&,' B' B' B' ")&' !*" o U
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8#,' &4&,?' F' #8' ")&' <$-1& ' '
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8#,' &4&,?' /' #8' ")&' <$-1&' 0 ' ' '
$(9')$"$' $&6' 9",$!" #,' 5,&2$,$" #'' #86' ")&' -@' ' 0'
< ",#-6' 9",$!" #,' 5,&2$,$" #'' #86
8#,' &4&,?' /' #8' ")&' <$-1&' /0' '
M 9",$!" #,' 5,&2$,$" #'' #8' $'?' ," !-&' '#" @& '.' 2$,N
" !1-$,-?' &'1%&,$"&(' #,' (&+!, @&(6' '#,' #")&,* +&'
!)$,.&(' * ")' 31"?' B' 8#,' &4&,?' /' #8' ")&' <$-1&' □ ' ' '
,6' $'(' '' -&1' #8' $'?' #8' ")&' $@#4&' 31" &+6' $" ")&'
2" #'' #8' ")&' %2#,"&,' B' B' ")&' -@ □ □ □

&$")&,+6' K,
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G' '#" #")&,* +&' &'1%&,$"&(' #,' (&+!, @&(6' K,
B' B' B' B' (,&++&(8#,' &4&,?' /' #8' ")&' <$-1&' /
B' B' B' B' 1'(,&++&(8#,' &4&,?' /' #8' ")&' <$-1&'
.+' B' ' B ")&' !*"
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G G' &-+6' ")&') 2;+' $('.' ' ' B' a
BBBBBB #@+"&,+' ' B' B' B ,&&
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BBBBBB "#!:' +)' B' B' B' ")&' / 0
BBBBBB "1,.&#'6' ")&' D&.6' '#" !#'"$ ' '.' %#,&' ")$'' 4&' H$--#'+ I

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, " +)' <&++&-+' B' B' B' B' B ,&&
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#,' 1' (,&++&(' B B B B B ' ")&' ! * "'
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-#"+$%' ' 3&,&- !"
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8#,' &4&,?' F' #8' ")&' <$-1&' /0
#++ -+6' '#"' #")&, * +&' &'1%&,$"&(' #,' (&+!, @&(6
8#,' &4&,?' F' #8' ")&' <$-1& /
BBBBBBBBB 2&! %&' +' #8' ' 2&! %&' +
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8#,' &4&,?' F' #8' ")&' <$-1& /
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8#,' &4&,?' F' #8' ")&' <$-1& 0
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BBBBBBB H&,%$'')&&"' H-$++' ' ")&' ! * "
BBBBBBB 5-$"&' H-$++6' +12&,8 ! $-' &$+1,&6' K,
B' B' B' '#"' !#'"$ ' ' .' %#,&' ")$'' I' C1$,&' &&"6
")&' C1$,&' ##"
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H-1& #,' H&-$" '& á B a B ")& !*" /
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8#,' &4&,? F' #8")& <$-1&
H,$ '+6 K,
BBBBBBBBf H1 '&$ H,$ '+ B B B B ")&) /
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G' #8 5$,$(+& B B ")& -@ /
B B B 9",$!"#,' 5,&2$,$" #'' #8' 'H,$ '+6 '' 9",$!"
H,$' --$ B B B B B ")& -@ /
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BBBB' $'18$!"1,&+' #86' '#"' #")&,* +&' &'1%&,$"&(' #,' (&+!, @&(6
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233D#Eʽ O C /3DGʽ #3 ʽ /D72#G!ʽ # N

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#DEEʽ hʽ hʽ 3"Dʽ U ʽ Uʽ Uʽ

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+ EEDEE #ʽ #ʽ O D/ H2!ʽ 2#Gʽ O C /3DGʽ G /DH376ʽ
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2#G' +/ GIHD' .' 2#6' / 3 E"' + EEDEE #' #' OD/ H2!'
2#G' OC /3DG' G /DH376' ./ O' 3"D#HD' #3 ' /D72#G!
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DDH"' +72#]!' ' #H"DE' #' " H]#DEE' /' ICZ2/GE!
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' ' ' .' 27T' /3E!' .' 3"D' / Z3"' 2#G' +/ GIHD' .' 2#6
/ 3 E"' + EEDEE #' #' OD/ H2!' 2#G' OC /3DG'
G /DH376' ./ O' 3"D#HD' ' ' 3"D' U U' Q'
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' ' ' I#GD/' V' #H"DE' \I2/D!' 2#G' I#GD/' ' ADD3' #
D#43"' ' H' H' 3"D' U ' U' Q
' ' ' V' #H"DE' \I2/D' 2#G' I#GD/' Q' #H"DE' \I2/D!' /' .
' AD]' #' D#43"' /' ICZ2/GE' ' 3"D' U ' '
' ' ' .' 27T' /3E' I#GD/' Q' #H"DE' \I2/D!' .' 3"D' / Z3"'
2#G' +/ GIHD' .' 2#6' / 3 E"' + EEDEE #' #'
OD/ H2!' 2#G' OC /3DG' G /DH376' ./ O' 3"D#HD!
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2/GE!' '
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I#GD/' ' #H"DE' #' 7 H]#DEE!' 2#G' I#GD/' V
ADD3' #' D#43"' ' ' 3"D' U ' ' T'
I#GD/' ' #H"DE' #' " H]#DEE!' 2#G' .' V' ADD3
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' ' ' I#GD/' ' #H"DE' #' " H]#DEE!' 2#G' I#GD/' V
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' I3E GD' 72OE' /' +27 #4' 2/GE!' "DZDG' #' ' #D
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!' 2O FD' '%' #H"' #' " H]#DEE' ' 3"D' U ' U' U'
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' ' ' ' I3E GD' 72OE' /' +27 #4' 2/GE!' "DZDG' #' ' #D
GD!' D&HDDG #4' ' ADD3' #' D#43"!' /' D&HDDG #4'
7 ' #H"' #' " H]#DEE!' 2/D' EIO5DH3' 2#G' 7 2O7D' 3 '
3"D' * I3 DE' C262O7D' #' * D27E

B (2C VT

)@ =* *I36

@ G! +
2/GE! +)
' I3E GD 72OE /+27 #4 2/GE! "DZDG #' #D
GD! .3"D / Z3" 2#G +/ GIHD .2#6
/3E" + EEDEE # # OD/ H2! 2#G O^
C /3DG G /DH376 ./ O 3"D#HD!
3 D&HDDG #4 ADD3 # D#43"! 2#G # 3
2O FD #H" # "H]#DEE 3"D U U V U
D&HDDG #4 ADD3 # D#43" 2#G # 3 D&^
HDDG #4 ADD3 # D#43"! 2#G # 3 2O FD
#H" # "H]#DEE 99 3"D U
D&HDDG #4 ADD3 # D#43"! / D&HDDG #4
/3 #H" # "H]#DEE! 2/D EIO5DH3 2#G
7 2O7D 3 3"D * I3 DE C262O7D # * D27E
+ CD 2/GE!
2O FD V ADD3 #H"DE # D#43" 2#G # 3
D&HDDG #4 Q ADD3 # D#43"! 2#G I#GD/
Q #H"DE \I2/D 3"D U U
D&HDDG #4 Q ADD3 # D#43"! 2#G I#GD/ Q
#H"DE \I2/D 3"D U Q T U
.277 /3E! D&HDDG #4 V ADD3 #H"DE #
D#43" 2#G I#GD/ Q #H"DE \I2/D! .3"D
/ Z3" 2#G +/ GIHD .2#6 /3E" + E^
EDEE # # OD/ H2! 2#G OC /3DG G /DH376
./ O 3"D#HD H H 3"D U U T
@2 #EH 3 2/GE!
3"D A 3! H #32 # #4 ADD3 # D#43"! 2#G
#H" # "H]#DEE! 2#G E # C/ C /3 #
. /2#64/D23D/ /7DEED/ D#43" / "H]#DEE U U
2/GE .277 /3E # 3 3"D/Z ED D#IOD/23DG /GDEH/ODG
.3"D / Z3" 2#G +/ GIHD .2#6 /3E" + EEDEE #
OD/ H2! 2#G OC /3DG G /DH376 ./ O 3"D#HD! 3"D U U Q
ZEC/ 3E (B 2E3E
*D27E 3 OD IEDG # B #DE!
2O FD #H"DE # @ G3"! OD #4 Q ADD3 # D#43"
2#G # 3 2O FD U ADD3 # D#43"! 2#G # 3 D&
f HDDG #4 % #H" # "H]#DEE 3"D U
f *D27E OC /3DG #3 /D23 / 32 #!
f 2O FD #H"DE # @ G3"! OD #4 T ADD3 # D#43"
2#G # 3 2O FD 8 ADD3 # D#43"! 2#G # 3 D&^
HDDG #4 #H"DE # "H]#DEE 3"D U U U
2O FD #H"DE # @ G3"! 2O FD T ADD3 #
D#43"! 2#G # 3 2O FD ADD3 # D#43"! 2#G
3 D&HDDG #4 XN #H"DE # "H]#DEE 3"D U U U
2O FD #H"DE # @ G3"! 2O FD ADD3 # D#43"
2#G # 3 2O FD V ADD3 # D#43"! 2#G # 3
2O FD % #H"DE # "H]#DEE 3"D U U U
2O FD V ADD3 # D#43"! / 2O FD , #H"DE #
"H]#DEE M# 3 OD #4 OOD/ Q #H"DE \I2/D
/ ICZ2/GEP 3"D 2G H #32 # #4 VU (IO H ADD3
f 2#G .I/3"D/ 3"D U *
f f *D27E .3"D / Z3" 2#G +/ GIHD .2#6 /3E" + E^
EDEE # # OD/ H2! 2#G OC /3DG G /DH376 ./ O
3"D#HD #3 /D23 / 32 #!
2O FD #H"DE # @ G3"! OD #4 T ADD3 # D#43"
2#G # 3 2O FD T ADD3 # D#43"! 2#G # 3 D&^
HDDG #4 X #H"DE # "H]#DEE 3"D U
Q

$ ˢ ˢ B ˢ ˢ (2C VT

)@ =* *I36

@ G!ˢ + ; ,
ˢ *D27Eˢ .ˢ3"Dˢ / Z3"ˢ 2#Gˢ +/ GIHDˢ .ˢ2#6ˢ / 3E"ˢ + EEDE^
E #ˢ #ˢ OD/ H2!ˢ H!ˢ +
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"!ˢ 2O FDˢ Tˢ ADD3ˢ #
D#43"ˢ 2#Gˢ # 3ˢ 2O FDˢ ˢ ADD3ˢ #ˢ D#43"!ˢ
2#Gˢ # 3ˢ D&HDDG #4ˢ %ˢ #H"DEˢ #ˢ " H]#DEE!
3"Dˢ U ˢ
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"!ˢ OD #4ˢ Tˢ ADD3ˢ #ˢ D#43"
2#Gˢ # 3ˢ 2O FDˢ ˢ ADD3ˢ #ˢ D#43"!ˢ 2#Gˢ D&HDDG^
#4ˢ %ˢ #H"DEˢ #ˢ " H]#DEEˢ ˢ ˢ 3"Dˢ U ˢ Uˢ U
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"!ˢ D&HDDG #4ˢ ˢ ADD3ˢ #
D#43"!ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ ˢ #H"DEˢ #ˢ " H]^
#DEEˢ ˢ ˢ ˢ hˢ hˢ 3"Dˢ U Vˢ Uˢ U
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"!ˢ D&HDDG #4ˢ ˢ ADD3ˢ #
D#43"!ˢ 2#Gˢ D&HDDG #4ˢ ˢ #H"DEˢ #ˢ " H]^
#DEEˢ M# 3ˢ OD #4ˢ OOD/ˢ Qˢ #H"DEˢ \I2/Dˢ /ˢ
ICZ2/GEPˢ ˢ ˢ ˢ ˢ 3"Dˢ U Uˢ Uˢ U
*D27Eˢ OC /3DGˢ #3 ˢ /D72#G!ˢ ' &
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ
#H"DEˢ #ˢ @ G3"!ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ %ˢ #H"DEˢ
#ˢ " H]#DEE!ˢ 2
ˢ ˢ ˢ Qˢ ADD3ˢ #ˢ D#43"ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ
ADD3ˢ #ˢ D#43"ˢ ˢ ˢ 3"Dˢ U V
ˢ ˢ ˢ D&HDDG #4ˢ ˢ ADD3ˢ #ˢ D#43"ˢ 2#Gˢ # 3ˢ D&^
HDDG #4ˢ ˢ ADD3ˢ #ˢ D#43"ˢ ˢ 3"Dˢ U U
ˢ ˢ ˢ D&HDDG #4ˢ ˢ ADD3ˢ #ˢ D#43"ˢ 2#Gˢ # 3ˢ D&^
HDDG #4ˢ Tˢ ADD3ˢ #ˢ D#43"ˢ ˢ 3"Dˢ U T T
ˢ ˢ ˢ D&HDDG #4ˢ Tˢ ADD3ˢ #ˢ D#43"ˢ 2#Gˢ # 3ˢ D&^
HDDG #4ˢ Qˢ ADD3ˢ #ˢ D#43"ˢ ˢ 3"Dˢ Uˢ Q
D&HDDG #4ˢ Qˢ ADD3ˢ #ˢ D#43"ˢ 2#Gˢ # 3ˢ D&^
HDDG #4ˢ Uˢ ADD3ˢ #ˢ D#43"ˢ ˢ 3"Dˢ U U V
ˢ f ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ
#H"DEˢ #ˢ @ G3"!ˢ 2#Gˢ D&HDDG #4ˢ Xˢ #H"DEˢ #ˢ
" H]#DEE!ˢ '
Qˢ ADD3ˢ #ˢ D#43"ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ Uˢ ADD3
#ˢ D#43"ˢ ˢ ˢ ˢ 3"Dˢ U ˢ ˢ
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ
#H"DEˢ #ˢ @ G3"!ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ ˢ #H"DEˢ
#ˢ " H]#DEE!ˢ 2#Gˢ D&HDDG #4ˢ Uˢ ADD3ˢ #ˢ D#43"!
3"Dˢ U V ˢ ˢ
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ
#H"DEˢ #ˢ @ G3"!ˢ 2#Gˢ D&HDDG #4ˢ ˢ #H"DEˢ #ˢ
" H]#DEE!ˢ 2#Gˢ D&HDDG #4ˢ Uˢ ADD3ˢ #ˢ D#43"!
3"Dˢ U ˢ
*D27ˢ #GEˢ OC /3DGˢ #3 ˢ /D23ˢ / 32 #!ˢ '
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"!ˢ OD #4 ˢ I#GD/ˢ Tˢ ADD3ˢ #
D#43"!ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ ˢ #H"DEˢ #ˢ " H]^
#DEEˢ hˢ J hˢ ˢ ˢ 3"Dˢ U ˢ
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"!ˢ OD #4ˢ I#GD/ˢ Tˢ ADD3ˢ #
D#43"!ˢ 2#Gˢ D&HDDG #4ˢ #H"DEˢ #ˢ " H]#DEE!
3"Dˢ U ˢ
ˢ *D27ˢ #GEˢ .ˢ3"Dˢ / Z3"ˢ 2#Gˢ +/ GIHDˢ .ˢ2#6ˢ / 3E"
+ EEDEE #ˢ #ˢ OD/ H2!ˢ 2#Gˢ OC /3DGˢ G /DH376ˢ
./ Oˢ 3"D#HDˢ #3 ˢ /D23ˢ / 32 #!ˢ '
ˢ ˢ ˢ 2O FDˢ ˢ #H"DEˢ #ˢ @ G3"!ˢ OD #4ˢ I#GD/ˢ Tˢ ADD3ˢ #
D#43"!ˢ 2#Gˢ # 3ˢ D&HDDG #4ˢ kˢ #H"DEˢ #ˢ " H]^
#DEEˢ ˢ ˢ ˢ ˢ 3"Dˢ U Uˢ Vˢ U

Z Q HV < $2 0 /

)@ =* * I36

@ G! +)
* D27 #GE .3"D / Z3" 2#G +/ GIHD .2#6 / 3 E" + E^
EDEE # # OD/ H2! H ! +
2O FD #H"DE # @ G3"! OD #4 I#GD/ T ADD3 #
D#43"! 2#G D&HDDG #4 X #H"DE # " H]#DEE!
3"D U
* D27 #GE OC /3DG #3 /D72#G! '
f 2O FD #H"DE # @ G3" 2#G # 3 D&HDDG #4
#H"DE # @ G3"! 2#G I#GD/ Q ADD3 #
D#43"! ')
3 D&HDDG #4 #H"DE # " H]#DEE!
3"D U Q
D&HDDG #4 X #H"DE # " H]#DEE 3"D U Q
* D27E 2#G * D27 #GE! '
.277 /3E! .3"D / Z3" 2#G +/ GIHD .2#6 / ^
3 E" + EEDEE # # OD/ H2! 2#G OC /3DG G /DH376
./ O 3"D#HD #3 /D72#G 3"D U U Q
#G .I/3"D/! # 277 * D27E 2#G * D27 #GE OC /3DG
#3 /D72#G! .3"D 2. /DE2 G D#43"E 2#G " H]^
#DEEDE! OI3 .3"D . 77 Z #4 @ G3"E! 3"D 2GG 3 #27
* I3 DE . 77 Z #4! ')
. D&HDDG #4 #H"DE # @ G3" 2#G # 3
D&HDDG #4 V #H"DE # @ G3"! ZD#36
. FD CD/ (D#3 ! / ' #D A I/3" .3"D 2. /D^
E2 G =23DE
. D&HDDG #4 V #H"DE # @ G3" 2#G # 3
D&HDDG #4 Q #H"DE # @ G3"! A .36 CD/
(D#3 ! / ' #D > 27. .3"D 2. /DE2 G =23DE
. D&HDDG #4 Q #H"DE # @ G3" 2#G # 3
D&HDDG #4 #H"DE # @ G3"! DFD#36 . FD
CD/ (D#3 ! / "/DD A I/3"E . 3"D 2. /D^
E2 G =23DE
. D&HDDG #4 #H"DE # @ G3"! ' #D
" I#G/DG CD/ (D#3 ! / 2# 2GG 3 #27 * I36
D\ I27 3 3"D 2. /DE2 G =23DE /DECDH3 FD76
A /DZ G # 3 . 3 / C/ CD/ 3 OD IEDG 3"D/ 3"2# 2E
EIH"! ')
f 3"D A23" O! T ADD3 Z GD 2#G T ADD3 " 4" U U
f OC /3DG ./ O 2#6% / 3 E" + EEDEE # # OD/ H2!
3"D A23" O T ADD3 Z GD 2#G T ADD3 " 4" U U U
A / Y I2/3D/E!
I#GD/ V #H"DE \ I2/D! 2#G I#GD/ ADD3 # D#43"!
3"D U Q
I#GD/ V #H"DE \ I2/D! 2#G ADD3 # D#43" /
ICZ2/GE 3"D U U U
V #H"DE \ I2!/D / ICZ2/GE 2/D EIO5DH3 2#G 7 2O7D
3 3"D * I3 DE C262O7D # A / OOD/
f A / Y I2/3D/E .3"D / Z3" 2#G +/ GIHD .2#6 / 3 E"
+ EEDEE # # OD/ H2! 2#G OC /3DG G /DH376 ./ O
3"D#HD! '
I#GD/ V #H"DE \ I2/D! 2#G I#GD/ ADD3 #
D#43" 3"D U V U
I#GD/ V #H"DE \ I2/D! 2#G ADD3 # D#43" /
ICZ2/GE h h 3"D U T
V #H"DE \ I2/D / ICZ2/GE 2/D EIO5DH3 2#G 7 2O7D
3 3"D * I3 DE C262O7D # A / OOD/

/Q \ Z Q=HV ' < ' $2 0

) @ = * * I36

9' 9

@ G!' + ' 9 " 3

A /' OOD/ ' (' OOD/

>2#GEC]DE!' '

' ' ' I#GD/' o' ADD3' #' D#43"' ' ' 3"D' U U U

o' ADD3' #' D#43"' /' ICZ2/GE' ' ' 3"D' U U U

>2#GEC]DE' OC /3DG' ./ O' 2#6' / 3 E"' + EEDEE #' #

OD/ H2!' '

' ' ' I#GD/' o' ADD3' #' D#43"' ' ' 3"D' U U T

' ' ' ' ADD3' #' D#43"' /' ICZ2/GE' ' ' 3"D' U U V U

?#DDE' .' ' 2]!' '

I#GD/' V' #H"DE' \I2/D' ' ' 3"D' U U U U

' ' ' V' #H"DE' \I2/D' 2#G' I#GD/' Q' #H"DE' \I2/D!

3"D' U U U

' ' ' Q' #H"DE' \I2/D' /' ICZ2/GE!

3"D' 2G' H #32 # #4' TU' (IO H' ADD3 T U

f f ' ?#DDE' .' ' 2]' OC /3DG' ./ OK2#6' / 3 E"' + EEDEE #' #'

OD/ H2!' '

' ' ' I#GD/' V' #H"DE' \I2/D' ' ' 3"D' U U U

' ' ' V' #H"DE' \I2/D' 2#G' I#GD/' Q' #H"DE' \I2/D!

3"D' U U V U

Q' #H"DE' \I2/D' /' ICZ2/GE!

3"D' 2G' H #32 # #4' VU' (33O H' ADD3 U V U

f f ' 23"Z G!' '

' ' ' #' + DHDE' I#GD/' V' ADD3' #' D#43"!

3"D' A23" O' T' ADD3' Z GD' 2#G' T' ADD3' " 4" V U

' ' ' #' + DHDE' V' ADD3' #' D#43"' 2#G' I#GD/' Q' ADD3'

#' D#43"!

3"D' A23" O' T' ADD3' Z GD' 2#G' T' ADD3' " 4" T U

' ' ' Q' ADD3' #' D#43"' 2#G' I#GD/' ' ADD3' #' D#43"!'

3"D' A23" O' T' ADD3' Z GD' 2#G' T' ADD3' " 4" U U

' $ ' ' ADD3' 7 #4' /' ICZ2/GE!

3"D' A23" O' T' ADD3' Z GD' 2#G' T' ADD3' " 4" U

23"Z G' OC /3DG' ./ O' 2#6' / 3 E"' + EEDEE #' #

OD/ H2!' '

' ' ' #' + DHDE' I#GD/' V' ADD3' #' D#43"!

3"D' A23" O' T' ADD3' Z GD' 2#G' T' ADD3' " 4" U V U

' ' ' #' + DHDE' V' ADD3' #' D#43"' /' ICZ2/GE!

3"D' A23" O' T' ADD3' Z GD' 2. G' T' ADD3' " 4" V U

' B2E3E!' -2/GE!' /' ZEC/ 3E!' '

&' &' &' .' #H"DE' #' * 2O D3D/' 2#G' I#GD/' Q' #H"DE!' D2H" U Q U

Q' #H"DE' #' * 2O D3D/' 2#G' I#GD/' ' #H"DE!' D2H" U

' ' ' ' #H"DE' #' * 2O D3D/' /' ICZ2/GE!

3"D' 2G' H #32 # #4' VU' (IO H' ADD3 V U

B2E3E!' -2/GE!' /' ZEC/ 3E!' OC /3DG' ./ O' 2#6' / 3 E"

+ EEDEE #' #' OD/ H2!' '

T' #H"DE' #' * 2O D3D/' 2#G' I#GD/' Q' #H"DE!' D2H" U T

' ' ' Q' #H"DE' #' * 2O D3D/' 2#G' I#GD/' ' #H"DE!' D2H" U U

' ' ' ' #H"DE' #' * 2O D3D/' /' ICZ2/GE!

3"D' 2G' H #32 # #4' VU' (IO H' ADD3 U U U

hhhhh ' ' 2]' +72#]!' '

' #H"DE' #' " H]#DEE' /' ICZ2/GE!

3"D' 2G' H #32 # #4' TU' (IO H' ADD3 U U

$ B ' ' (2C'VT V

)@ =* *I36

@ G!' + 8 ' '
' '2]' +72#]' .'3"D' / Z3"' .'2#6' /3E"' + EEDEE #' #
OD/ H2!'2#G' OC /3DG'G /DH376'./ O'3"D#HD!' '
' ' ' ' #H"DE' #' " H]#DEE' /' ICZ2/GE!
3"D' 2G' H #32 # #4' VU' (IO H' ADD3' U' V' U'

f f ' '2]' OOD/' (' OOD/
' '2/E' ' ' h' h' h' 3"D' U ' '
' ' ' .' 3"D' / Z3"' .' 2#6' /3E"' + EEDEE #' #
OD/ H2!' 2#G' OC /3DG' G /DH376' ./ O' 3"D#HD!
3"D' U U' ' T

C2 E!' '
' f ' I#GD/' ' ADD3' #' D#43"!' 2#G' I#GD/' ' #H"DE' #
* 2O D3D/!' D&H7IE FD' .' 3"D' 2/]' ' 3"D' U ' Q' U'
' ' ' ' ADD3' #' D#43"' /' ICZ2/GE!' 2#G' I#GD/' ' #H"DE
#' * 2O D3D/!' D&H7IE FD' .'3"D' 2/]' ' 3"D' U ' V' U'
' ' ' #H"DE' #' * 2O D3D/' 2#G' I#GD/' T' #H"DE' #' * 2^
O D3D/!' D&H7IE FD' .' 3"D' 2/]' ' 3"D' U ' U' U
' ' ' .' 3"D' / Z3"' .' 2#6' /3E"' + EEDEE # #'
OD/ H2!' 2#G' OC /3DG' G /DH376' ./ O
3"D#HDN' '
f ' ' I#GD/' ' ADD3' #' D#4 2#G' I#GD/'
#H"DE' #' * 2O D3D/!' D&H7IE FD' .'3"D' 2/]!
3"D' U U' ' U'
f f ' ' ADD3' #' D#43"' /' ICZ2/GE!' 2#G' I#GD/'
#H"DE' #' * 2O D3D/!' D&H7IE FD' .'3"D' 2/]!
3"D' U U' T' U
f ' ' ' #H"DE' #' * 2O D3D/' 2#G' I#GD/' T' #H"DE
#' * 2O D3D/!' D&H7IE FD' .' 3"D' 2/]!
3"D' U ' V' U

C]DE'. /' @"DD7E!' '
' f ' # 3' D&HDDG #4' ' ADD3' #' D#43"' ' 3"D' !UUU ' ' '
' ' ' D&HDDG #4' ' ADD3' #' D#43"' ' ' 3"D' !UUU T' ' Q
' ' .' 277' /3E!' .'3"D' / Z3"' .'2#6' /3E"' + EEDE^
E #' #' OD/ H2!' 2#G' OC /3DG' G /DH376' ./ O'
3"D#HD' ' ' 3"D' !UUU U' T' '

32FDE!' '
' ' ' # 3' D&HDDG #4' ' ' #H"DE' #' D#43"!' # 3' 2O FD'
#H"DE' #' " H]#DEE!' 2#G' # 3' D&HDDG #4' o' #H"DE'
#' /D2G3"' ' ' ' ' 3"D' U '
2O FD' T' #H"DE' #' D#43"' 2#G' # 3' D&HDDG #4' VU
#H"DE' #' D#43"!' # 3' 2O FD' ' #H"DE' #' " H]^
#DEE!' 2#G' # 3' D&HDDG #4' o' #H"DE' #' /D2G3"!
3"D' U .' *'
' ' ' 2O FD' VU' #H"DE' #' D#43"' 2#G' # 3' D&HDDG #4' TU
#H"DE' #' D#43"!' # 3' 2O FD' ' #H"DE' #' " H]^
#DEE!' 2#G' # 3' D&HDDG #4' o' #H"DE' #' /D2G3"!
3"D' U ' U' U
2O FD' TU' #H"DE' #' D#43"' 2#G' # 3' D&HDDG #4'
#H"DE' #' D#43"!' # 3' 2O FD' ' #H"DE' #' " H]^
#DEE!' 2#G' # 3' D&HDDG #4' ' #H"DE' #' /D2G3"!
3"D' U ' ' U'
' ' 2O FD' ' #H"DE' #' D#43"!' # 3' 2O FD' ' #H"DE
#' " H]#DEE!' 2#G' # 3' D&HDDG #4' ' #H"DE' #'
/D2G3"' ' ' ' 3"D' U ' ' U
Q'

/ %% % B ! (2CVT

)@ =* *I36

@ ,! 4 2 "
32FDE! +

20 FD #H"DE # "H]#DEE! /20 FD #H"DE # /D2G3"! 2#G# 3D&HDDG #4T #H"DE" D#43"! E"277 OD GDDODG (72C 2/GE! 2#G OD H"2/4DG Z 3" * I36 2HH /G #476

20 FD Q #H"DE # "H]#DEE! /20 FD 3 #H"DE # /D2G3"! 2#G D&HDDG #4 T #H"DE # D#43"! E"277 OD GDDODG + CD 2/GE! 2#G OD H"2/4DG Z 3" * I36 2HH /G #476

32FDE OC /3DG ./ O 2#6 /3E" + EEDEE # # OD/ H2! 2#G OC /3DG G /DH376 ./ O 3"D#HDN

3 D&HDDG #4 T #H"DE # D#43"! # 3 20 FD X #H"DE # "H]#DEE! 2#G # 3 D&HDDG #4 #H"DE # /D2G3" 3"D U

20 FD T #H"DE # D#43" 2#G # 3 D&HDDG #4 VU #H"DE # D#43"! # 3 20 FD % #H"DE # "H]^ #DEE! 2#G # 3 D&HDDG #4 o #H"DE # /D2G3"! 3"D T U U

20 FD VU #H"DE # D#43" 2#G # 3 D&HDDG #4 TU #H"DE # D#43"! # 3 20 FD X #H"DE # "H]#DEE! 2#G # 3 D&HDDG #4 o #H"DE # /D2G3" 3"D T

20 FD TU #H"DE # D#43" 2#G # 3 D&HDDG #4 o- #H"DE # D#43"! # 3 20 F #H"DE # "H]#DEE! 2#G # 3 D&HDDG #4 o #H"DE # /D2G3" 3"D U

20 FD o- #H"DE # D#43"! # 3 20 FD /2 #H"DE # "H]#DEE! 2#G # 3 D&HDDG #4 o #H"DE # /D2G3" 3"D U

3 D&HDDG #4 , #H" # "H]#DEE E"277 OD H"2/4DG Z 3" '#D " /G +2/3 . 3"D * I36 "D/D # C/ C EDG # EIH" 32FDE

20 FD % #H"DE # "H]#DEE! / 20 FD o #H"DE # /D2G3"! 2#G # 3 D&HDDG #4 T #H"DE # D#43"! E"277 OD GDDODG (72C 2/GE! 2#G OD H"2/4DG Z 3" * I36 2HH /G #476

20 FD % #H"DE # "H]#DEE! / 20 FD o #H"DE # /D2G3"! 2#G D&HDDG #4 T #H"DE # D#43"! E"277 OD GDDODG + CD 2/GE! 2#G OD H"2/4DG Z 3" * I36 2HH /G #476

D2]D @ G 3"D 2G! H #32 # #4 VU (IO H ADD3

OC /3DG ./ O 2#6 /3E" + EEDEE # # ./ H2! 3"D 2G! H #32 # #4 VU (IO H ADD3 U U U

OC /3DG ./ O 2#6 /3E" + EEDEE # Z 3" # 3"D O 3E .3"D 2E3 #G 2 (OC2#6aE ("2/3D/! 3"D 2G! H #32 # #4 VU (IO H ADD3 U U

OC /3DG ./ O 2#6 3"D/ +72HD Z 3" # 3" ED O 3E! 3"D 2G! H #32 # #4 VU (IO H ADD3 U U U

9 OOD/! # N

A / OOD/! Q #H"DE \I2/D / ICZ2/GE! 3"D 2G! H #32 # #4 VU (IO H ADD3 V U

ʾ ʾ a B ʾ ʾ (2C VT

)@ =* * I36

@ G!ʾ +) Tʾ

ʾ O OD/!ʾ ʾ 9

ʾ ʾ ʾ A /ʾ O OD/ʾ O C /3DGʾ ./ Oʾ 2#6ʾ / 3 E"ʾ + EEDEE #
#ʾ O D/ H2!ʾ Qʾ #H"DEʾ \ I 2/Dʾ /ʾ I CZ 2/GE!
3"Dʾ 2G!ʾ H #32 # #4ʾ VUʾ (I O Hʾ ADD3 Uʾ Uʾ U

ʾ ʾ ' 2]ʾ O OD/!ʾ Qʾ #H"DEʾ \ I 2/Dʾ /ʾ I CZ 2/GE!
3"Dʾ 2G!ʾ H #32 # #4ʾ VUʾ (I O Hʾ ADD3 ʾ Vʾ U

ʾ ʾ ʾ ' 2]ʾ O OD/ʾ .ʾ3"Dʾ / Z3"ʾ .ʾ2#6ʾ / 3 E"ʾ + EEDE^
E #ʾ #ʾ O D/ H2!ʾ 2#Gʾ O C /3DGʾ G /DH376ʾ ./ Oʾ
3"D#HD!ʾ Qʾ #H"DEʾ \ I 2/Dʾ /ʾ I CZ 2/GE!
3"Dʾ 2G!ʾ H #32 # #4ʾ VUʾ (I O Hʾ ADD3 Uʾ Uʾ U

ʾ ʾ ʾ O OD/ʾ .ʾ277ʾ /3E!ʾ # 3ʾC2/3 H I72/76ʾD# I O D/23DGʾ /
GDEH/ ODG!ʾ # /ʾ 3"D/Z EDʾ H"2/4DGʾ Z 3"ʾ * I36!ʾ
OD #4ʾ Qʾ #H"DEʾ \ I 2/Dʾ /ʾ I CZ2/GE!
3"Dʾ 2G!ʾ H #32 # #4ʾ VUʾ (I O Hʾ ADD3 ʾ

ʾ ʾ ʾ O OD/ʾ .ʾ 277ʾ /3Eʾ # 3ʾ C2/3 H I72/76ʾ D# I O D/23DG
/ʾ GDEH/ ODG!ʾ # /ʾ 3"D/Z EDʾ H"2/4DGʾ Z 3"ʾ * I36!ʾ
OD #4ʾ .ʾ 3"Dʾ / Z3"ʾ .ʾ 2#6ʾ / 3 E"ʾ + EEDEE #ʾ
#ʾ O D/ H2!ʾ 2#Gʾ O C /3DGʾ G /DH376ʾ ./ Oʾ 3"D#HD!ʾ
OD #4ʾ Qʾ #H"DEʾ \ I 2/Dʾ /ʾ I CZ2/GE!
3"Dʾ 2G!ʾ H #32 # #4ʾ VUʾ (I O Hʾ ADD3 Uʾ Vʾ U

fʾ .D/E!ʾ

ʾ ʾ ʾ I#GD/ʾ Vʾ #H"DEʾ \ I 2/D!ʾ 2#Gʾ I#GD/ʾ ʾ ADD3ʾ #
D#43"ʾ ʾ ʾ 3"Dʾ U Qʾ ʾ ʾ
ʾ ʾ ʾ I#GD/ʾ Vʾ #H"DEʾ \ I 2/D!ʾ 2#Gʾ ʾ ADD3ʾ #ʾ D#43"
/ʾ I CZ2/GEʾ ʾ ʾ Hʾ ʾ 3"Dʾ U ʾ Uʾ U
ʾ ʾ ʾ Vʾ #H"DEʾ \ I 2/Dʾ /ʾ I CZ 2/GEʾ 2/Dʾ E I O5DH3ʾ 2#Gʾ 7 2O7D
3 ʾ 3"Dʾ * I 3 DEʾ C262O7Dʾ #ʾ A /ʾ O OD/
ʾ ʾ ʾ .D/Eʾ O C /3DGʾ ./ Oʾ 2#6ʾ / 3 E"ʾ + EEDEE #ʾ #
O D/ H2!ʾ
ʾ ʾ ʾ I#GD/ʾ Vʾ #H"DEʾ \ I 2/D!ʾ 2#Gʾ I#GD/ʾ ʾ ADD3
#ʾ D#43"ʾ Hʾ Hʾ ʾ 3"Dʾ U ʾ Vʾ U
ʾ ʾ ʾ I#GD/ʾ Vʾ #H"DEʾ \ I 2/D!ʾ 2#Gʾ ʾ ADD3ʾ #
D#43"ʾ /ʾ I CZ2/GEʾ ʾ ʾ 3"Dʾ U ʾ ʾ T
ʾ ʾ ʾ Vʾ #H"DEʾ \ I 2/Dʾ /ʾ I CZ2/GEʾ 2/Dʾ E I O5DH3
2#Gʾ 7 2O7Dʾ 3 ʾ 3"Dʾ * I 3 DEʾ C262O7Dʾ #ʾ A /ʾ
O OD/

ʾ @ 2 #EH 3ʾ 4E!ʾ

ʾ ʾ ʾ Qʾ #H"DEʾ \ I 2 aDʾ /ʾ I CZ2/GE!
3"Dʾ 2G!ʾ H #32 # #4ʾ VUʾ (I O Hʾ ADD3 ʾ Vʾ Uʾ
@2 #EH 3ʾ 4Eʾ .ʾ3"Dʾ / Z3"ʾ .ʾ2#6ʾ / 3 E"ʾ + EEDEE #
#ʾ O D/ H2!ʾ 2#Gʾ O C /3DGʾ G /DH376ʾ ./ Oʾ 3"D#HD!
3"Dʾ 2G!ʾ H #32 # #4ʾ VUʾ (I O Hʾ ADD3 Uʾ ʾ U

f ʾ @ G!ʾ I# O 2# I .2H3 I /DG!ʾ .ʾ 3"Dʾ / Z3"ʾ .ʾ 2#6ʾ / 3 E"
+ EEDEE #ʾ #ʾ O D/ H2!ʾ # 3ʾC2/3 H I72/76ʾD# I O D/23DGʾ /ʾ
GDEH/ ODG!ʾ # /ʾ 3"D/Z EDʾ H"2/4DGʾ Z 3"ʾ * I36!
. /ʾ DFD/6ʾ UU<ʾ .ʾ3"Dʾ 27 I D Vʾ Uʾ U

f ʾ @ G!ʾ I# O 2# I .2H3 I /DG!ʾ # 3ʾC2/3 H I72/76ʾD# I O D/23DGʾ /
GDEH/ ODG!ʾ 2#Gʾ #ʾ Z" H"ʾ 3"Dʾ * I 3 DEʾ G I Dʾ #ʾ 3"Dʾ O ^
C /323 #ʾ 2/Dʾ C262O7Dʾ 2HH /G #4ʾ 3 ʾ 3"Dʾ 27 I Dʾ 3"D/D .!ʾ
OD #4ʾ .ʾ3"Dʾ / Z3"ʾ .ʾ 3"Dʾ / 3 E"ʾ O 3Eʾ Z 3" #ʾ 3"Dʾ
+/ F #HDʾ .ʾ - I H232#ʾ #ʾ 3"Dʾ 26ʾ .ʾ > #G I /2E!ʾ 2#Gʾ
O C /3DGʾ G /DH376ʾ ./ Oʾ 3"Dʾ E2 Gʾ 26!
. /ʾ DFD/6ʾ UU<ʾ .ʾ3"Dʾ 27 I D Vʾ Uʾ U

Q ʻ ʻ ʻ B ʻ ʻ (2C VT

)@ =* *I36

@ !ʻ ʻ ʻ

@ G!ʻ I#O2#I.2H3I/DG!ʻ# 3ʻC2/3 HI72/76ʻD#IOD/23DGʻ /
GDEH/ODG!ʻ# /ʻ 3"D/Z EDʻH"2/4DGʻZ 3"ʻ *I36!
. /ʻDFD/6ʻ UU<ʻ .ʻ3"Dʻ 27ID ʻ ʻ

@ 7!ʻ

D2FD/ʻ@ 7ʻ ʻ ʻ ʻ ʻ 3"Dʻ7O □ʻ ʻ
ʻ ʻHI3ʻ2#Gʻ H OODGʻ ʻ ʻ ʻ 3"Dʻ7O Uʻ ʻ ʻ
f fʻ(#D6ʻ@ 7ʻ ʻ ʻ ʻ hʻ ʻ 3"Dʻ7O Uʻ Uʻ ʻ
(33 #ʻ@ 7!ʻ /ʻ@2E3Dʻ .ʻ(33 #ʻ@ 7ʻ ʻ 3"DʻHZ3 □ʻ ʻ
ʻ ʻ ʻ3"Dʻ +/ GIHDʻ .ʻ2#Gʻ OC /3DGʻ./ Oʻ 2#6ʻ /3E"
+ EEDEE #ʻ ʻ ʻ ʻ ʻ 3"DʻHZ3 Uʻ Uʻ ʻ
23aEʻ@ 7ʻ /ʻ>2 /ʻ ʻ ʻ ʻ ʻ 3"Dʻ7O Uʻ Uʻ
ʻ ʻ ʻ3"Dʻ +/ GIHDʻ .ʻ2#Gʻ OC /3DGʻ./ Oʻ 2#6ʻ /3E"
+ EEDEE #ʻ ʻ hʻ ʻ ʻ h A/DD
>2/DaEʻ@ 7ʻ ʻ ʻ hʻ ʻ ʻ 3"Dʻ7O ʻ ʻ
2OOaEʻ@ 7ʻ ʻ "DDCaEʻ@ 7
ʻ=DGʻ /ʻ HI#2ʻ@ 7ʻ ʻ ʻ ʻ 3"Dʻ7O ʻ ʻ *
"DDCʻ /ʻ 2OOaEʻ@a 7!ʻ
ʻ ʻ ʻ ʻ# 3ʻOD#4ʻ .ʻ3"Dʻ 27IDʻ .ʻ Eʻ 3"Dʻ7Oʻ 3"D/D .!
3"Dʻ7O ʻ ʻ /
ʻ ʻ ʻ ʻOD#4ʻ .ʻ3"Dʻ 27IDʻ .ʻ Eʻ 3"Dʻ7Oʻ /ʻ ICZ2/GE!
3"Dʻ7O □ʻ □ʻ ʻ
ʻ ʻ ʻ ʻ3"Dʻ+/ GIHDʻ .ʻ2#Gʻ OC /3DGʻ./ Oʻ2#6ʻ /3E"
+ EEDEE #ʻ hʻ ʻ A/DD

@ 77D#E!ʻ

B2#I.2H3I/DEʻ .ʻ@ 7ʻ# 3ʻOD#4ʻ 23aEʻ@ 7!ʻ /ʻ .
@ 7ʻO &DGʻZ 3"ʻ(33 #!ʻ# 3ʻC2/3 HI72/76ʻD#IOD^
/23DGʻ /ʻ GDEH/ODG!ʻ# /ʻ 3"D/Z EDʻ H"2/4DGʻ Z 3"ʻ
*I36ʻ ʻ ʻ . /ʻDFD/6ʻ UU<ʻ .ʻ3"Dʻ 27ID Vʻ Uʻ Uʻ
/3H7DEʻ .ʻB2#I.2H3I/DEʻ .ʻ@ 7ʻM# 3ʻOD#4ʻ 23aEʻ
@ 7Pʻ /ʻ .ʻ@ 7ʻ O &DGʻZ 3"ʻ(33 #!ʻZ" 776ʻ /ʻ
#ʻC2/3ʻO2GDʻIC!ʻ# 3ʻ 3"D&aZ EDʻH"2/4DGʻZ 3"ʻ *I36!ʻ
. /ʻDFD/6ʻ UU<ʻ .ʻ3"Dʻ 27ID Uʻ Uʻ U

@/DH]ʻ ʻ*D/D7 H3

-2/#!ʻ

ʻ (2O7Dʻ -2/# 3"DʻHZ3 Uʻ Uʻ ʻ
ʻ (2OD7ʻ /ʻB "2 /ʻ -2/# 3"Dʻ7Oʻ □ʻ □ʻ ʻ
fʻ ʻ =2Zʻ #D#ʻ -2/#ʻ 3"DʻHZ3ʻ ʻ ʻ
ʻ@ /E3DGʻ -2/# 3"Dʻ7O Uʻ Uʻ T

i2../D 3"DʻHZ3ʻ □ʻ ʻ □
iDO/2ʻ@ G 3"Dʻ # ʻ □ʻ □

GE!ʻ@2/DE!ʻ2#Gʻ B D/H"2#G dD!ʻOD#4ʻD 3"D/ʻ #ʻC2/3ʻ /ʻZ" 776ʻ
O2#I.2H3I/DG!ʻ 2#Gʻ # 3ʻOD#4ʻ D#IOD/23DGʻ /ʻGDEH/ODG!ʻ
/ʻ 3"D/Z EDʻ H"2/4DGʻ Z 3"ʻ *I36!ʻ 2#Gʻ # 3ʻ C/ "O3DGʻ
3 ʻODʻ OC /3DGʻ #3ʻ /ʻIEDGʻ #ʻ /D23ʻ /32#ʻ /ʻ /D72#G!
. /ʻDFD/6ʻ UU<ʻ .ʻ3"Dʻ 27ID □ʻ □ʻ □

$ ʼ ʼ B ʼ ʼ (2C VT

) @ = * !* I 36

GE!ʼ @ 2/DE!ʼ 2#Gʼ B D/H"2#G dD!ʼ # 3ʼ OD #4ʼ D 3"D/ʼ #ʼ C2/3ʼ /ʼ ʼ 1ʼ
Z " 776ʼ O 2#I .2H3I /DG!ʼ 2#Gʼ # 3ʼ OD #4ʼ D#I O D/23DGʼ /ʼ
GDEH/ ODG!ʼ # /ʼ 3"D/Z EDʼ H"2/4DGʼ Z 3"ʼ * I 36!ʼ 2#Gʼ
3ʼ C/ " O 3DGʼ 3 ʼ ODʼ O C /3DGʼ #3 ʼ /ʼ I EDGʼ #ʼ /D23
/ 32 #ʼ /ʼ /D72#Gʼ ʼ . /ʼ DFD/6ʼ UU<ʼ .ʼ 3"Dʼ 27I D Vʼ Uʼ U

* ! f 77ʼ GE!ʼ 3"Dʼ +/ G I HDʼ /ʼ B 2#I .2H3I /Dʼ
.ʼ 3"Dʼ E72#Gʼ .ʼ B 2I / 3 I E!ʼ 2/Dʼ E I O5DH3ʼ 3 ʼ 3"Dʼ
E2 O Dʼ * I 3 DEʼ 2Eʼ 2/Dʼ O C EDGʼ #ʼ 3" Eʼ 2O7Dʼ #ʼ
3"Dʼ 7] Dʼ GE!ʼ 3"Dʼ +/ G I HDʼ /ʼ B 2#I .2H3I /Dʼ .ʼ
3"Dʼ / 3 E"ʼ + EEDEE #Eʼ #ʼ 3"Dʼ @ DE3ʼ #G DE

77ʼ GE!ʼ 3"Dʼ +/ G I HDʼ /ʼ B 2#I .2H3I /Dʼ .ʼ 3"Dʼ
(2CDʼ .ʼ Gʼ > CDʼ /ʼ 3"Dʼ D// 3 / DEʼ /ʼ * D
CD#GD#H DEʼ 3"D/D .!ʼ 2/Dʼ E I O5DH3ʼ 3 ʼ 3"Dʼ E2 O Dʼ m
ʼ * I 3 DEʼ 2Eʼ 2/Dʼ O C EDGʼ #ʼ 3" Eʼ 2O7Dʼ #ʼ 3"D
7] Dʼ GE!ʼ 3"Dʼ +/ G I HDʼ /ʼ B 2#I .2H3I /Dʼ .ʼ 3"Dʼ
/ 3 E"ʼ + EEDEE #Eʼ Z 3" #ʼ 3"Dʼ O 3Eʼ .ʼ 3"Dʼ
2E3ʼ #G 2ʼ (O C2#6aEʼ ("2/3D/!ʼ D&HDC3ʼ Z "D#ʼ
2#6ʼ 3"D/ʼ * I 36ʼ Eʼ D&C/DEE76ʼ O C EDGʼ 3"D/D #

U $ B (2C VT

6 3V V V E 3

+ #8 @ . + #8 # . 2$?$@-& #' H:_#(+6 E$,&+6 $'(
&,!)$'(L& &92#,"&(8,#% ")& V' "&(D '.(#% "# #,& . ' 5$,"+

' @ =* *I36

3 OD #4 O 27 (27E! D&C /3DG 3 2#6 +72HD # 3 OD #4
2 /3E" + EEDEE #N '
#2 /3E" "C 3"D #
#2 "C # 3 /3E" 3"D #
O 27 (27E! (I7O! 2#G (#GD/E D&C /3DG 3 2#6 +72HD # 3
OD #4 2 /3E" + EEDEE #N '
#2 /3E" "C 3"D #
#2 "C # 3 /3E" 3"D #
>2/D] #E 2#G (#D6] #E 3"D UU] #E
>2/D @ 7 2#G (#D6 @ 7 3"D HZ3
"DDC 2#G 2OO @ 7 Z 3"D HZ3
@ 7.D7E! B /37 #4E! " /37 #4E! -2/#! @ /E3DG! @ 7.7 H]E!
% (/DZD7E! (FD/7D3E! @2GG #4E! / 3"D/ B 2#I.2H3I/DE / C/D^
3D#GDG B 2#I.2H3I/DE! E7 4"376 Z/ I4"3 IC! 1U 2E 3"23 3"D
E2OD O26 OD /DGIHDG 3 2#G O2GD IED . 2E @ 7 242 #
B 233/DEEDE / DGE E3I..DG Z 3" H OODG @ 7 / @ 7 . 3
. / H OO #4 / H2/G #4 % 3"D HZ3 U U
GE! @2/DE! 2#G B D/H"2#G dD . 3"D / 3 3"! +/ GIHD! /
B 2#I.2H3I/D . 3"D # 3DG ? #4G O M# 3 O2 #4 EIO5DH3 3
3"D/ &C /3 *I36!! # / C2/3 HI72/76 D&DO C3DG O &C /3
*I36P . / DFD/6 UU% . 3"D 27ID
&HDC3 3"D . 77 Z #4 /3 H7DE!
I77 # 2#G (#
(/#! /2 #! B D27! B 273! A7 I/! EHI 3! /2#! /3E! +D2/7
2/7D6 2#G H 3H" 2/7D6
(33 # -2/# / 3"D/ (33 # B 2#I.2H3I/DE
A E"
#D#! / #D# Z 3" (33 # O &DG
B D72EEDE / /D2H7D
B 7 32/6 (7 3" #4! HH I3/DOD#3E! / CC #3OD#3E D&C /3DG
I#GD/ 3"D I3" / 36 . 3"D (OO EE #D/K . > E B 25DE36aE
/D2EI 6! 2#G ED#3 3 2#6 . > E B 25DE36aE A /HDE ED/F #4
O/ 2G
B 7 32/6 3 /DE D&C /3DG 3 #G 2 O6 3"D 2E3 #G 2 (OC2#6
273
I42/! /D. #DG! . 27 /3E! 2#G I42/ (2#G6
GE! @2/DE! 2#G B D/H"2#G dD D&C /3DG 3 3"D E7D . B 2#
O6 F/3ID . 2#6 HD#HD Z" H" 3"D (OO EE #D/E . > E
B 25DE36aE (IE3 OE O26 OD DOC ZD/DG 3 4/2#3
#6 /3 . (/2.3! A G! H3I27E! (7 3" #4! 3 OC7DOD#3E
/ B 23D/ 27E #DHDEE2/6 . / 3"D /3E" A E"D/ DE DE32O7E"DG
2#6 . 3"D /3E" + EEDEE #E #) /3" OD/ H2! 2#G
D&C /3DG G /DH3 3"D/D3
@ 7
;@% 77D# GE! / @ 77D# 2#G (33 # O &DG! / @ 77D#
2#G #D# O &DG! D&C /3DG 3 2#6 +72HD Z 3" # 3"D O 3E .
3"D 2E3 #G 2 (OC2#6aE ("2/3D/

ʹ ʹ Zʹ TV

B ʹ ʹ =

5 ʹ <

H3ʹ . /ʹ 3"Dʹ Z2/D" IE #4ʹ .ʹ GE

[Q3"ʹ % ʹ Q _

E ʹ $'ʹ !"ʹ *$+ʹ 2$++&(ʹ 'ʹ ")&ʹ 9")ʹ &$,ʹ #8ʹ ")&ʹ & . 'ʹ #8ʹ +ʹ -$"&ʹ $>&+"?ʹ D '.ʹ ʹ ")&ʹ #1,")6ʹ '" "1-&(ʹ ʹ ʹ ʹ $ ʹ 7 ʹ *)&,&@?ʹ T ʹHʹ ʹ ")&ʹ $*+ʹ #8ʹ 1+"#%+ʹ 'ʹ ,&-$" #"8ʹ"(ʹ ")&ʹ *$,&)#1+ '.ʹ #8ʹ H##(+ʹ *&,&ʹ !#'+#- ($"&(ʹ $'(ʹ $%&'(&(ʹ ʹ '(ʹ *)&,&$+ʹ + '!&ʹ ")&ʹ 2$++ '.ʹ #8ʹ ")&ʹ +$ (ʹ !"ʹ (4&,+ʹ !"+7,8@,ʹ ")&ʹ 81,")&,ʹ %&'(%&'"ʹ #8ʹ ")&ʹ $*ʹ)$4&ʹ @&&'ʹ 8#1'(ʹ '&!&++$,?6ʹ $'(ʹ "ʹ * --ʹ @&ʹ #8ʹ $(4$'"$.&ʹ "#ʹ ")&ʹ ,$(&ʹ $'(ʹ #%%&,!&ʹ #8ʹ ")&ʹ #1'",?ʹ ")$"ʹ ")&ʹ +$ (ʹ !"+ʹ +)#1-(ʹ @&ʹ !#'+#- ($"&(ʹ '"#ʹ #'&ʹ !"ʹ @&ʹ "ʹ ")&,&8#,&ʹ &'$!"&(ʹ @?ʹ ")&ʹ D '.;+ʹ %#+"ʹ 9!&--&'"ʹ $>&+"?6ʹ @?ʹ $'(ʹ * ")ʹ ")&ʹ (4 !&ʹ $'(ʹ #'+&'"ʹ #8ʹ")&ʹ #,(+ʹ 2 , "1$-ʹ $'(ʹ &%2#,$-6ʹ $'(ʹ #%%#'+6ʹ 'ʹ ") +ʹ 2,&+&'"ʹ 5$,- $%&'"ʹ $++&%@-&(6ʹ $'(ʹ @?ʹ ")&ʹ 1")#, "?ʹ #8ʹ ")&ʹ +$%&ʹ)$"ʹ ") +ʹ !"ʹ +)$--ʹ !#%%&'!&ʹ (O O D#HDʹ 12#'ʹ ")&ʹ ,+"ʹ 3$?ʹ #8ʹ *" ʹ '&ʹ ")#1+$'(ʹ & .)ʹ)1'(,&(ʹ $'(ʹ O D#3ʹ .ʹ H3ʹ ") ,"?B"),&&6ʹ &9!&2"ʹ *)&,&ʹ $'?ʹ #")&,ʹ #%%&'!&%&'"ʹ +ʹ)&,& 'ʹ 2$,N " !1-$,-?ʹ (,&!"&(ʹ ʹ

ʹ '(ʹ)&ʹ "ʹ 81,"-8&,ʹ &'$!"&(ʹ)$"ʹ "ʹ +)$--ʹ @&ʹ -$*81-ʹ 8#,ʹ ")&ʹ/D2E I /6ʹ3 ʹ #%% ++ #'&,+ʹ #8ʹ +ʹ $>&+"?;+ʹ ,&$+1,?6ʹ @?ʹ ")&,ʹ E$,,$'"ʹ 8,#%ʹ 2CC #3ʹ %&ʹ "#ʹ %&ʹ "#ʹ $22# '"ʹ ")&ʹ 5#,"+ʹ "ʹ ")&ʹ V' "&(ʹ D '.(#%ʹ *) !)ʹ Z2/D" IE #4ʹ +)$--ʹ @&ʹ *$,&)#1+ '.ʹ 5#,"+ʹ 8#,ʹ ")&ʹ 51,2#+&+ʹ #8ʹ ") +ʹ !"ʹ> $'(ʹ ")$"ʹ "ʹ + /3E +)$--ʹ @&ʹ -$*81-ʹ 8#,ʹ ")&ʹ #%% ++ #'&,+ʹ #8ʹ +ʹ $>&+"?;+ʹ 1+"#%+6ʹ (O O EE #^ +1@>&!"ʹ "#ʹ ")&ʹ 1")#, "?ʹ $'(ʹ 3 ,&!" #'+ʹ #8ʹ ")&ʹ #%% ++ #'&,+ʹ #8ʹ D/Eʹ3 ʹ2CC #3ʹ +ʹ $>&+"?;+ʹ ,&$+1,?6ʹ @?ʹ ")&,ʹ ,(&,ʹ8,#%ʹ %&ʹ "#ʹ %&ʹ "#ʹ $22# '"ʹ @2/D" IEDE! Nʹ 'ʹ *)$"ʹ E$,&)#1+&+ʹ #,ʹ 5-$!&+ʹ #8ʹ +2&! $-ʹ &!1, "?6ʹ #,ʹ #8ʹ #,('$,?ʹ 2#Gʹ /D\ I /Dʹ #G

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' '(' @& " 81,")&,' &'$!"&(')$" *)&'&4&,' $'? E$,&)#1+&
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$ E$,&)#1+& #8 +2&! $-' &!1, "?6 " +)$-' @& +"$"&(' ' ")&,' ,(&,'
#8 22# '"%&'" ")$" +1!)' E$,&)#1+& + $22# '"&(' $+ $ E$,&)#1+&
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@2/D" IEDE H ##DH3DG Z 3"' @"2/.E 2#G Z 3" # @27E' H'3 ' OD 2/D' " IEDE .' ECDH 27 DHI^ /36 Z 3" I3 CC #3^ OD#3
*")' E)$,8+ 8#,' ")& -$'('.' #8 ")& H##(+ "# @& -#(.&(' ")&,& '6 $'('
&'!-#+&(' "#.&")&,' * ")' 1!)' E)$,8+ * ") ' E$--+6 +1!)' $+ $,& #,' +)$--
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-&.$--? %2#,"&(] 5,#4 (&(' $-*$?+6 ")$" 8#,' &4&,? #.+)&$(6)&+"6
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.&'&,$-ʿ &!1, "?6ʿ")&ʿ (88&,&'"ʿ %2#,"&,+ʿ #8ʿ")&ʿ +&2$,$"&ʿ T1$'" " &+ʿ #8ʿ . 4&ʿ 2$," !1N
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")&ʿ +$%&ʿ +)$--ʿ @&ʿ 8#,8& "&(ʿ $'(ʿ 8ʿ $'?ʿ %2#,"&,ʿ #,ʿ 5,#2, &"#,ʿ #8ʿ H #HD27DGʿ /
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5,#2&, 88 !&, #8 ")& 1+"#%+6 $'(' 1!) $''&,6 $'(@? +1!)
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"/DD - D2/E!
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3 OD E]7 /
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&'" $'(#")&,)$,.&+6 $'(")& 4&,2-1+6 8 $'?6 +)$-- @& 2$ ("#
")& 5,#2, &"#, $'(+1!) H##(+6 *)&' +#-(6 +)$-- @&)&-(+1@>&!" "#
$-- ")& #'("#'+ "# *) !) ")&? *&,& +1-?&!" 2,&4 #1+ "# +1!) $-&6
&9!&2" ")$" $ 81,")&, %& #8),&& #'")+ 8,#% ")& 3$"& #8 ")&
$-& +)$-- @& $--#*&("# ")& 51,!)$+&, 8#, ")& !-&$, '. #8 +1!) H##(+
8,#% ")& E$,&)#1+&' $'(8 ")& H##(+ +# +#-(+)$-- '#" @& (1-?
!-&$,&(8,#% ")& E$,&)#1+& * ") ' +1!)),&& #'")+6 ")& +$%&
+)$-- @& 8#,8& "&(5,#4 (&($-*$?+6 ")$" 8 ")& H##(+ +# "# @& (+N
2#+&(#8 +)$--)$4& @&&' %2#,"&(@? ")& . #%2$'?6 #,
+)$-- @& #8 ")& 3&+!, 2" #' !$--&([5 &!& H##(+6^ %2#,"&(8,#%
5-$!&+ * ") ' ")& % "+ #8 ")& ,)$,"&, '"# ")& 5#," #8
")& +$%& +)$--6 $" ")& &C1 + " #' #8 ")& #%% ++ #'&,+ #8 1+"#%+6
@& (1-? &92#+&("# $-& @? ")& +$ (#%2$'? $" ")& , '&9" &'+1 '.
$-&6 $'(+)$-- @& ")&' +#-(8#, ")&) .)&+" 5, !& *) !) +)$-- @& ")&'
21@- !-? #88&,&(8#, ")& +$%&

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E" CC #4
GE! * I36
3 OD /DO 3
3DG

< '(@& " 81,")&, &'$!"&( )$" 8 $'? H##(+ &'"&,&("# @&
E$,&)#1+&(6 #, &'"&,&("# @& (&- 4&,&(8,#% ")& E$,&)#1+&6 +)$--
@& -#+" #, (&+",#?&(@? $'? 1'$4# ($@-& !! (&'"6 &")&, #") 2B
@#$,(#, ' ")& -$'('.#, +) 22 '. #8 ")& +$%&6 #, ' ")& ,&!& 4 '.
#, (&- 4&, '. 8,#%6 ")& E$,&)#1+&6 " +)$-- @& -$*81- 8#, ")&
#%% ++ #'&,+

$ ' K B ' ' (2C'V

#%% ++ #'&,+ #8 + $>&+"?;+ +"#,'+ "# ,&% " #, ,&"1,' ")&
31" &+ 2$?$@-& #, 2$ (#'' ")& T1$'" "? #8 +1!) H##(+ +# -#+" #,
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< '(@& "81,")&, &'$!"&(6)$" '# H##(+ *) !))$4& @&&'
+# *$,&)#1+&(+)$-- @& "$:&' #, (&- 4&,&(8,#% ")& E$,&)#1+&6
&9!&2" 12#' (1& '",?6 $'(1'(&, $,& #8 ")& 2,#2&, 88 !&,+ 8#,
92#,"$" #'6 #, 12#' (1& '",? $'(5$?%&'" #8 ")& 81-- 31" &+ 2$?N
$@-& ")&,&#' 8#, #%& V+&6 8")&? @& +1!) H##(+ $+ %$? @& 1+&('
")& V' "&(D '.(#% +$4& $'(&9!&2" H##(+ (&- 4&,&('"# ")&
)$,.& #8 ")& &$,!)&,+ "# @& +) 22&($+ "#,&+6 $'(*) !) +)$-- $'(
%$? @& +# +) 22&(* ")#1" '",? #, 5$?%&'" $'? 31"? 8#, $'?
) 2 #8 ")& 1,")&' #8 &4&'"? #'+ $" -&$+"6 @#1'(12#' $ <#?$.&
"# #,& .' 5$,"+6 ")& 2,#@$@-& 31,$" #' #8 *) !) #1" $'(#%&
* -- '#" @& -&++ ")$' #,"? 3$?+] 5,#4 (&($-*$?+6 ")$" +1!)
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+)$-- @& +) 22&(' +1!) T1$'" " &+ $'(+1@>&!" "# +1!) 3 ,&!" #'+
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")&)$,.& #8 ")& &$,!)&,6 "# @& ,&+) 22&($+ "#,&+ 8#, ")& +$%&
) 26 #, 8#, ")& +$%& $+"&, '$'#")&,) 26 * ")#1" '",? #, 5$?N
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@#,'& 12#' ")& < !"1$-- '. --+ #8 +1!)) 2+ ,&+2&!" 4&-? $'(8
")&) 2 8#, ")& 81"1,&' V+& #8 *) !) $'? +1,2-1+ "#,&+)$4& @&&'
*$,&)#1+&(+)$--)$4& @&&' @8#:&' 12 #, +#-(6 +1!) "#,&+ %$? @&
+# (&- 4&,&(8#, ")& V+& #8 $'? #")&,) 2 @&-#'. '. "# ")& +$%&
* '&,+6 #, %$? @& &'"&,&(8#, 5$?%&'" #8 31"?6 $'((&- 4&,&(8#,
")& 2, 4$"& V+& #8 +1!) * '&,+6 #, $'? #8 ")&%6 #, #8 ")& $+"&, #,
51,+&, #8 +1!)) 2

< '(@& "8$,")&, &'$!"&( )$" 12#' ")& '",? #8 $'?
+1!) H##(+ "# @& !-&$,&(8,#% ")& <P $,&)#1+&6 8 ")& +$%& @& 8#,
#%& V+&6 ")& 5&,+#' &'"&, '. +1!) H##(+ '*$,(+ +)$-- (&- 4&, $
-- #8 ")& '",? $'(312- !$"&+ ")&,&#8 '- :& $''&, $+ g(,&!"&(
@? $* ' ")& $+& #8 H##(+ &'"&,&("# @& -$'(&(6 $+ 8$, $+ ")&
+$%& + $22- !$@-&6 $'($" ")& +$%& %& +)$-- 2$? (#*' "# ")&
2,#2&, 88 !&, #8 ")& 1+"#%+ ")& 81-- 31" &+ #8 1+"#%+ 2$?$@-&
")&,&#'6 $'('#" @& '. -&++ ' %#1'" ")$' $!!#,('. "# ")& !!#1'"
#8 ")& T1$'" "? 8 ,+" "$:&' #8 ")& ,&+2&!" 4& 5$!:$.&+ #, 5$,!&-+ #8
")& H##(+ ' +1!) '",? $" ")& 9$% '$" #' ")&,&#8 $" ")& %&
#8 ")& 8 ,+" '",? $'(-$'('. #8 ")& +$%&6 * ")#1" $'? @$"&%&'"
#' $!!#1'" #8 $'? 3&8 ! &'!?6 &9!&2" $+ @? ") + !" + #")&,* +&
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"# $'? #")&, E$,&)#1+&6 $'($'? #8 ")& 5$!:$.&+ #, 5$,!&-+ #8 ")&
H##(+ @& (&8 ! &'" #8 ")& ,&+2&!" 4& T1$'" " &+ #8 ")& +$%&6 $!!#,('.
"# ")& !!#1'" 8 ,+" "$:&' $+ $8#,&+$ (6 $ - :& '",? '*$,(+ +)$--
$-+# @& 2$++&(' ,&+2&!" #8 ")& T1$'" " &+ +# (&8 ! &'"6 $'(")& 81--
31" &+ +- $-- @& 2$ (#' ")& %#1'" ")&,&#8 @&8#,& +1!) 5$!:$.&+
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=I0. /
3 /DE 2#G
EI/C7IE
3 /DE 026^
OD E" CCDG
Z 3" I3
#3/6! .
O / D # H
3I277 #4 77N

#3/6. /
&C /323 #
/ > OD
ED

GE CD/^
0 33DG 3 OD
E" CCDG ./ O
3"D @2/D^
" IED * I36^
./DD 2E " CÆ
3 /DE

/ D#3D/DG
. / C/ F23D
ED

* I3 DE 3 OD
C2 G # / ^
4 #27 YI2#
3 37DE! D&HDC3
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(2EDE

. . / &C /^
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> Z' 27ID'
2EHD/32 #DG

#,' 5$,!&-+' #8' H##(+' +)$--' @&' (&- 4&,&(' #,' "$:&'' 8#,' 92#,"$" #'' '
&%#4$-6' &9!&2'' $+' @?' ") +' !'' +' #")&,* +&' 2,#4 (&(' $'(' 8'$'?
H##(+'7#' (&8 ! &''' '' T1$'" "?' +)$--' @&' +1!)' $+' $,&' !)$,.&(' "#' 2$?
31"?' $!!#,('.' "#' ")&' <$-1&' ")&,&#86' +1!)' <$-1&' +)$--' @&' &+" %$"&('
$''" &' 5, !&' 8#,' *) !)' ")&' - :&' #,"+' #8' H##(+' #8' ")&' @&+'' T1$- "?'
+)$--')$4&' @&&'' -$+'' #,' -$"&-?' +#-(6' & ")&,' $'' $'?' $-&' #8' ")&' . ' '
#%2$'?' #,' '' $'?' #")&,' $''&,6' $' ")&' $+&' %$?' @&

* I3 DE' #'
O2HH !'
I42/!' 2#G'
C / 3E' 3 ' OD'
H"2/4DG' #'
Y I2#3 3 DE'
GD7 FD/DG!'
D&HDC3' #'
HD/32 #' (2EDE

' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(6')$'' ")&' 31" &+'
2$?$@-&' 12#'' #@$!!#6' 1.$,6' $'(' 2 , "+' ,&+2&!" 4&-?6' *)&'' "$:&''
#1'' #8' E$,&)#1+&' 8#,' #%&' V+&6' +)$--' @&' !)$,.&(' 12#'' ")&' T1$'N
"" &+' $+!&,"$ '&(' @?' ")&' E& .)"6' &$+1,&6' #,' ",&' .")' #8' ")&' +$%&'
$!"1$--?' (&- 4&,&(' ' +$4&' $'(' &9!&2'' ")$'' 8' ")&' 1.$,' +)$--' '#'' @&' ''
$' E$,&)#1+&' #8' +2&! $-' &!1, "?6' '#' .,&$"&,' @$"&%&'' #'' $!!#1''
#8' 3&8 ! &'!?' #8' ")&' T1$'" "?' 8 ,+'' $+!&,"$ '&(' $+' $8#,&+$ (' +)$--' @&'
%$(&' ")$'' +)$-' @&' $8"&,' ")&' $"&' #8'),&&' ' * ' #8' +1!)'
T1$'" "?' 8#,' ")&' 8 ,+''),&&' #'")+6' $'(' '&' ' *' 8#,' &4&,?'
+1@+&C1&'' #'")' (1, '.' *) !)' +1!)' 1.$,' +)$--')$4&' @&&'' E$,&B'
)#1+&(' $'(' $-+#' +$4&' $'(' &9!&2"6' ")$'' 8' ")&' 2 , "+' X@& '.' $'?
#")&,' 2 , "+' ")$'' 1%' #8' ")&' (' 5-$'"$" #'+[+)$--' '#'' @&' ''$'
E$,&)#1+&' #8' +2&! $-' &!1, "?6' '#' .,&$"&,' @$"&%&'' #'' $!!#1'' #8'
3&8 ! &'!?' #8' ")&' T1$'" "?' #,' ",&' .")' 8 ,+'' $+!&,"$ '&(' $+' $8#,&+$ ('
+)$--' @&' %$(&' ")$'' +)$--' @&' $8"&,' ")&' +&4&,$-' $"&+' #8' --#*$'!&+'
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#,' &4&,?' 1'(,&(' H$--#'+6' ?(,#%&"&,' 5,##8 ' I P
#,' $'?' %&' '#'' &9!&&('.' 9' #'")+' B' '&' H$--#'']
#,' $'?' %&' &9!&&('.' 9' #'")+' $'(' '#''
&9!&&('.' *&-4&' #'")+' B' B' B *#' H$--#'+]
#,' $'?' %&' &9!&&('.' *&-4&' #'")+' $'('
'#'' &9!&&('.' .)"&&'' #'")+'),&&' H$--#'+]
#,' $'?' %&' &9!&&('.' .)"&&'' #'")+' $'('
'#'' &9!&&('.' *#' &$,+' ' 7 B #1,' H$--#'+'
#,' $'?' %&' &9!&&('.' *#' &$,+ 4&' H$--#'+']

)' 77 Z'
2#HD' . /'
D2]24D

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3&8 ! &'!?' '' T1$'" "?' #8' $'?' 2 , "+' #!!$+ #'&(' & ")&,' 8$?' &$:$.&6'
#,' !! (&''6' $'(' '#'' @?' '$"1,$-' 4$2#,$" #'6' '' *)$"&4&,' E$,&N
)#1+&' ")&' +$%&' %$?' @&6' &9!&2'' $+' @?' ") +' !'' +' #")&,* +&' +2&! $--?
2,#4 (&(O

OC /3D/'
026' D#3D/'
GE' . /'
> OD' ED'
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323 #!' 27^
3" I4'' # 3'
2H3I2776'
Z2/D" IEDG

' '(' @&' '' 81,")&,' &'$!"&(')$'' 8' $8"&,' $'?' H##(+' +)$--'
)$4&' @&&'' (1-?' &''&,&(' $'(' -$'(&(' "#' @&' *$,&)#1+&(6' $'(' @&8#,&'
")&' +$%&' +)$--')$4&' @&&'' $!"1$--?' (&2#+ "&(' '' "- &' E$,&)#1+&6' ")&'
%2#,"&,' +)$--' 81,")&,' &''&,' ")&' +$%&' #,' $'?' 5$,'' ")&,&#8' 8#,' #%&'
V+&' #,' 8#,' 92#,"$" #'' $+' 8,#%' ")&' E$,&)#1+&6' ")&' H##(+' +#' &''&,&('
+)$--' @&' !#'+ (&,&(' $+' 4 ,"1$--?' $'(' !#'+",1!" 4&-?' *$,&)#1+&(6'
$-")#1.)' '#'' $!"1$--?' (&2#+ "&(' '' ")&' E$,&)#1+&6' $'(' +)$--' $'('
%$?' @&' (&- 4&,&(' $'(' "$:&'' 8#,' #%&' V+&' #,' 8#,' 92#,"$" #'6' $+' ")&'
$+&' %$?' @&

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/DO FDG' 3 '
3"D/' + /3E'
3 ' OD' /D^
Z2/D" IEDG'

' '(' *)&,&$+' '' +' &92&(&'' "#' %$:&' &.1-$" #'+' 8#,' ")&'
&%#4$-' #8' *$,&)#1+&(' H##(+' 8,#%' #'&' *$,&)#1+ '.' 5#,'' "#' $'#")&,6'
$'(' 8,#%' #'&' E$,&)#1+&' "#' $'#")&,' '' ")&' +$%&' 5#,"' @&' '' ")&,&B
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8#,&' &'$!"&(ᵴ)$" $'? H##(+ *) !)ᵴ -$4& @&&' ᵴ *$,&)#1+&($" +#%&
5#," ' ᵴ ")& V' "&(D '.(#% %$? @& ,&%#4&(@? &$ #, ᵴ '-$'(
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%$? @& *$,&)#1+&(12#' ᵴ %2#,"$" #' ᵴ "# @& ,&B *$,&)#1+&($" +" !)ᵴ
#")&, ᵴ 5#,"6 $'($.$ ' ᵴ $+ #8"&' ᵴ $+ %$? @& ,&C1 ,&("# $'? #")&, ᵴ +1!)ᵴ
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' ᵴ *) !)ᵴ ")& +$%& $,& !#'"$ '&(6 ' ᵴ *)$") 2 %2#,"&(6 *)&' ᵴ $'(I#GD/ D27E
@? *)#% &'"&,&('*$,(+ "# @& *$,&)#1+&(6 $'(8 +1@+&C1&'"-? #8 8 !&
,&B *$,&)#1+&(*)&' ᵴ $'(@? *)#% ,&B *$,&)#1+&(6 $'("# *)$"
5#," ")& +$%& $,& "# @& ,&%#4&($'(")&,&12#' ᵴ ")& E$,&)#1+&
ᵴ 88 !&, ᵴ +)$-- "$:& $ 2$," !1-$, ᵴ !!#1'" #8 +1!)ᵴ H##(+6 $'(+)$--
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'. ᵴ #8 ")& +$%& 8#, ᵴ ")& 51,2#+&+ #8 +1!)ᵴ &%#4$-6 $'(2,&4 #1+
"# ")& 3&- 4&,? ")&,&#8 %$? !$1+& ")& 2,#2&, ᵴ &$-+ #8 88 !& "# @&
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(ᵴ 5#++&++ #'+ ' ᵴ * ᵴ #, ᵴ #8 ")& V' "&("$"&+ #8 * ᵴ $4?
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@? ")& 51,+&, ᵴ #8 $'?) 2 #8 E$, ᵴ ' ᵴ $!"1$- &,4 !& "# ")& 5#,"+ #8 !&,"$ ' ᵴ 5#,"+
ᵴ > * ᵴ #, ᵴ > * ᵴ "# @& ")&,& ,&B *$,&)#1+&(6 ' ᵴ
$%& #8 +1!)ᵴ 51,+&,6 ' ᵴ +1!)ᵴ E$,&)#1+& $+ +)$-- @& $22,#4&(8#,
")$" 51,2#+& @? ")& #%% ++ #'&,+ #8 + $>&+"?;+ 1+"#%+

ᵴ '(@& " 81,")&, ᵴ &'$!"&(6)$" @&8#,& +1!)ᵴ H##(+ +)$-- @& '",? #8
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$ 2,#2&, ᵴ -- #8 +1!)ᵴ '",?6 * ")ᵴ 312- !$"&+ ")&,&#86 @& (&- 4&,&("# K
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" !1-$,+6 $'($' ᵴ &9$!" !!#1' ᵴ #8 ")& T1$'" &+ #8 ")& (88&,&'
#,"+ #8 H##(+ ᵴ $'(+1!)ᵴ -- #8 ")& '",?6 + .'&(@? ")& #--&!"#, ᵴ
$'(#'",#--&,6 +)$-- @& ")& E$,,$'" 8#, ᵴ ")& &%#4$- #8 +1!)ᵴ H##(+ ᵴ
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@& ",$'+% ""&(@? ")& 2,#2&, ᵴ 88 !&,+ #8 ")& 5#," #8 &%#4$- "# ")& "##"@!,5#' ᵴ
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+1!)ᵴ H##(+ $" ")& 5#," #8 3&+" '$" #' (1& '",? #8 ")& +$%& "#)& /#F23 "4
,&B *$,&- #1+&(+)$-- ' ᵴ - :& $''&, ᵴ @& %$(& * ")ᵴ ")& #--&!"#, ᵴ $'(
#'",#--&, ᵴ $" +1!)ᵴ 5#,"6 !#'"$ ' '. ᵴ $-- ")& 5$," !1-$,+ $'(!!#1'"+ #,%+ #8
@&8#,& %&'" #'&(6 "#.&")&, ᵴ * ")ᵴ ")& $%& #8 ")& 5#," 8,#% *) !)ᵴ ', &+6
+1!)ᵴ H##(+)$4& @&&' ᵴ ,&%#4&(6 $'(")& 3&+!, 2" #' $'("1$" #' ᵴ
#8 ")& E$,&)#1+& ' ᵴ *) !)ᵴ ")&? $,& "# @& *$,&)#1+&(ᵴ ᵴ $'(")& -- 9$% '$" ᵴ
#8 +1!)ᵴ '",?6 + .'&(@? +1!)ᵴ #--&!"#, ᵴ $'(#'",#--&,6 +)$-- @& ")& 88 !&,+6
E$,,$'" "# ")& $'('. ᵴ 88 !&, ᵴ $'(")& E$,&)#1+& 88 !&, ᵴ "# $(% '
+1!)ᵴ H##(+ "# @& ")&,& ,&B *$,&)#1+&(6 1'(&, ᵴ +1!)ᵴ 9$% '$" #' $+ +
%$(& #8 ")& - :& H##(+ *)&' 8 ,+' *$,&)#1+&(12#' %2#,"$" #'
8,#% 5$,"+ @&?#'(")& &$+ ᵴ $'(")& 5$," !1-$,+ "# @& !#'"$ '&(' &,18 !$J#X
+1!)ᵴ #" !& $'(' +1!)ᵴ '", &+ +)$-- @& *, ""&' ᵴ $'($,,$'.&('
+1!)ᵴ #,% $'($''&, ᵴ $+ ")& #--&!"#, ᵴ $'(#'",#--&, ᵴ +)$-- ,&C1 ,& &'#4$)
$'(")& 88 !&,+ $" ")& 5#," #8 ,, 4$- +)$-- ",$'+% "# ")& 88 !&,+
$" ")& 5#," #8 &%#4$- $' !!#1' #8 ")& H##(+ +# $,, 4&(6
$!!#,('. $+ ")&? +)$-- 12#' 9$% '$" #' 2,#4& "# @&6 $'(")&
@2/D" IED

U ; a B ' ' (2C V

E$,&)#1+& 88 !&,+ $" ")& 5#," #8 &%#4$- +)$-- '#" 8? Y`!) ,, 4$- '' ")& , ##:+

#G 3 ' /D ' Z2/D" IED! Z" H" 026 OD 4 FD# 23 D 3"D/ + /3

0798-- ' '(@& " 81,")&, &'$!"&( )$" ")& 5&,+#'+ ,&%#4 '. +1!) H##(+ +)$-- $" ")& %& #8 &'"&, '. ")& +$%& . 4& #'(6 * ") '& +188 ! &' 1,&"?6 8#,")& (1& ,, 4$- $'(,&B *$,&)#1+ '. #8 +1!) H##(+ * ") '' $,&$+#'$@-& %&6 X* ") ,&8&,&'!& "# ")& 3 +"$'!& @&"*&&'' ")& ,&+2&!" 4& 5#,"+6 "# @& 8 9&(@? ")& #%% ++ #'&,+ #8 + $>&+"?;+ 1+"#%+[6 *) !) #'(%$? @& "$:&'' @? ")& #--&!"#, $'(#'",#--&, & ")&, #8 ")& 5#," #8 &%#4$- #, #8 ")& 5#," #8 3&+" '$" #'6 $+ +)$-- @&+" +1 " ")& &+ (&'!& #, #'4&' &'!& #8 ")& 5&,+#'+ '"&,&+"&('' ")& &%#4$- #8 +1!) H##(+ $'(8 +1!) #'(+)$--)$4& @&&'' . 4&'' $" ")& 5#," #8 3&+" '$" #'6 $ &," 8 !$"& ")&,&#8 1'(&, ")& $'(+ #8 ")& #--&!"#, $'(#'",#--&, #8 +1!) 5#,";+)$--6 $" ")& %& #8 &'"&, '. +1!) H##(+6 @& 2,#(1!&("# ")& #--&!"#, #,; #'",#--&, #8 ")& 5#," #8 &%#4$-

#G O Z 3 ' OD G E^ H"2/4DG

< ' '(@& " 81,")&, &'$!"&(6)$" g1!) #'(+)$-- '#" @& (+!)$,.&(1'-&++ +1!) H##(+ +)$--)$4& @&&'' (1-? ,&B *$,&)#1+&($" ")& 5#," #8 3&+" '$" #'' * ") '' ")& %& $--#*&(8#, +1!) &%#4$-6 #, +)$--)$4& @&&'' #")&, * +& $!!#1'"&(8#, "# ")& $" +8$!" #'' #8 ")& +$ (#%% ++ #'&,+6 '#, 1'" - ")& 81-- 31" &+ (1& 12#'' $'? 3&8 N ! &'!? #8 +1!) H##(+ +)$--)$4& @&&'' 2$ (6 '#, 1'" - 8,&+) &!1, "? +)$--)$4& @&&'' . 4&'' '' ,&+2&!" #8 +1!) H##(+ '' %$''&,)&,& 'N $8"&, 2,#4 (&(6 1'-&++ +1!) H##(+ +)$--)$4& @&&'' -#(.&(6 '' +#%& E$,&)#1+& '' ,&+2&!" #8 *) !) .&'&,$- &!1, "? +)$--)$4& @&&'' . 4&'' @? ")& 5,#2, &"#, #, '' +#%& E$,&)#1+& '' ,&+2&!" #8 *) !) '# &!1, "? + ,&C1 ,&(

GE /D^ Z2/D" IEDG "D7G # D/ O E .3"D . /E3 Z2/D ' " IE #4 '

< ' '(@& " 81,")&, &'$!"&( )$" +1!) H##(+ *)&'' +# ,&B *$,&)#1+&(%$? @& &'"&,&($'(+) 22&(8#, 92#,"$" #'6 #, (&- 4&,&(8#, #%& V+&6 $+ ")& - :& H##(+ %$? @& *)&'' 8 ,+ *$,&)#1+&(12#'' %2#,"$" #'6 $'(")& %& *) !) +1!) H##(+ +)$-- @& ,&!:#'&(8,#%6 ")& 3$? *)&'' ")& +$%& *&,& 8 ,+ &'"&,&("# @& *$,&)#1+&(

'# //F27 2.3D/ A /OE ./D Z2/D^ " IE #4 ' +2/3 DE 026 D#3D/ 3 ' D&^ C /3 N / 32]D . / > 0D EDI Z 3" I3 . /E3 H2//6 #4 3 ' 3"D @2/D^ " IED

< ' '(@& " 81,")&, &'$!"&( )$" 8 12#'' ")& ,, 4$- #8 +1!) H##(+ $" ")& 5#," #8 3&+" '$" ")& 5$," &+ +)$-- @& (&+ ,#1+ 8#,") * ") "# &92#," ")& +$%&6 #, "# 2$? 31"? ")&,&#'' 8#, #%& V+&A * ")#1" $!"1$--? -#(.'. ")& +$%& '' ")& E$,&)#1+& 8#, *) !) ")&?)$4& @&&'' &'"&,&($'(&9$% '&("# @& ,&B *$,&)#1+&(6 " +)$-- @& -$*81- 8#, ")& 88 !&,+ #8 ")& 1+"#%+ $" +1!) 5#,"6 =$8"&, $-- ")& #,%$- " &+ #8 &'"&, '. $'(&9$% ' '. +1!) H##(+ 8#, ,&B *$,&)#1+ '.)$4& @&&'' (1-? 2&,8#,%&(X&9!&2" ")& $!"1$- $@#1' #8 !$,,? '. $1(#8 -#('. ")& +$%& '' ")& E$,&)#1+&[6 "# !#'+ (&, ")& +$%& $+ 4 ,N "1$--? #, !#'+",1!" 4&-? ,&B *$,&)#1+&(6 $'("# 2&,% " ")& +$%& "# @& &'"&,&($'(+) 22&(8#, 92#,"$" #'6 #, "# @& &'"&,&($'((&- 4&,&(8#, #%& V+&6 12#'' 5$?%&'' #8 ")& 31" &+ (1& ")&,&#'' '' - :& $''&,$+ 8 +1!) H##(+)$(@&&'' $!"1$--? +# !$,, &($'(-#(.&('' +1!) E$,&)#1+& $'(")& !!#1'' "$:&'' 8#, ")& ,&B *$,&)#1+ '. #8 +1!) H##(+ %$? +&,4& $+ ")& !!#1'' 8#, (&- 4&, '. ")& +$%& $+ 8 8,#%

; $ B (2C V

8,#% ")& E$,&)#1+&6 & ")&, 8#,) 2%&' # , 8#, 5$?%&' #8 31" &+6
$+ ")& $+& %$? @& $ '($-- H##(+ +# &92#,"&(6 #, 8#, *) !) ")&
31" &+)$4& @&&' +# 2$ (6 +)$-- @& (&&%&("#)$4& @&&' (1-? .-&$,&(
8,#% ")& E$,&)#1+&

< '(@& 81,")&, &'$!"&( )$" $'? H##(+ *) !))$4& =DO F27 #
@&&' *$,&)#1+&(+#%& E$,&)#1+& ")& 5#, #8 %$?6 3"D E2OD
* ") ")& 5&,% ++ #' #8 ")& #%% ++ #'&,+ #8 1+"#%+ 8 ,+ #@"$ '&(6
@& ,&%#4&("# $'? #")&, E$,&)#1+& ")& +$ (5#, *) !) ")&
- :& H##(+ %$? @& *$,&)#1+&(#' %2#,"$" #' $'($'? H##(+
*) !))$4& @&&' *$,&)#1+&(+#%& E$,&)#1+& $'? #")&, 5#,
%$?6 * ") ")& 5&,% ++ #' #8 ")& #--&!"#, $'(#'",#--&, #8 +1!)
5#, 8 ,+ #@"$ '&(6 @& ,&%#4&("# $'? #")&, E$,&)#1+& ")& +$%&
5#, *) !) ")& - :& H##(+ %$? @& *$,&)#1+&(#' %2#,"$" #'6
1'(&, +1!) .&'&,$- &.1-$" #'+ $+ ")& #%% ++ #'&,+ #8 ")& 1+"#%+
+)$-- (,&!"

< '(@& 81,")&, &'$!"&(6)$" $-- H##(+ *) !) +)$-- GE 2#G
)$4& @&&' ,&%#4&(8,#% #'& E$,&)#1+& 8#, #, "# $'#")&,6 *)&")&, +2/3 DE EIO^
")& +$%& 5#, #, $ (88&,&' 5#,"6 $'($-- 5,#2, &"#,+ #8 +1!) RWW \
H##(+6 +)$-- @&)&-(+1@>&! $-- ,&+2&!"+ "# $-- ")& #'("#'+
"# *) !) ")&? *#1-( )$4& @&&')&-(+1@>&! 8 +1!) H##(+)$(
,&%$ '&(")& E$,&)#1+& *)&,& ")& +$%&)$(@&&' #, . '$--?
*$,&)#1+&(

'(@& 81,")&, &'$!"&( )$" 8 $'? H##(+ +)$--)$4& GE E 7G!
@&&' *$,&)#1+&($'? E$,&)#1+& ,&+2&! #8 *) !) .&'&,$- *'&,
&!1, "? @? #'(6 $+)&,& 'B@&8#,& 2,#4 (&(6 +)$-- '#)$4& @&&'
. 4&' @? ")& 5,#2, &"#, #, !!12 &, #8 +1!) E$,&)#1+&6 $'(2$," B /D7D2ED 3"D
!1-$, &!1, "?6 $+ +1!) $+& + ,&C1 ,&(6 +)$--)$4& @&&' . 4&' @? / 4 #27
")& %2#,"&, #8 +1!) H##(+ ,&+2&! #8 ")& +$%&6 $'(+1!) H##(+ #GD/ !
+)$--)$4& @&&' +#-(#, (+2#+&(#86 +# ")$" ")& #, . '$- #'(&, +)$--B
@& '# -#'.&, '"&,&+"&(#,)$4& #'",#1- #4&, +1!) H##(+6
+)$-- @& -$*81- 8#, ")& 2,#2&, 88 !&,+ "# $(% 8,&+) &!1, "? "# @&
. 4&' @? ")& #'(#8 ")& '&* 5,#2, &"#, #8 +1!) H##(+ #, 5&,+#'+
)$4 '. ")& #'",#1- #4&, ")& +$%&6 * ")) + +188 ! &' 1,&"?6 $'(
"# !$'!&- ")& #'(. 4&' @? ")& #, . '$- #'(&, #8 +1!) H##(+6 #,
"# &9#'&,$"&) %6 $'( ) + 1,&"? "# ")& 9"&' #8 ")& 8,&+) &!1, "?
+# . 4&'

'(@& 81,")&, &'$!"&( )$" 8 ")& 5&,+#' ,&%#4 '. $'? = #G .=D
H##(+ 8,#% #'& 5#, "# $'#")&,6 $'(*)# +)$--)$4& . 4&' #'(O FD/ 3 OD
,&+2&! #8 +1!) &%#4$- $'(&B*$,&)#1+ '.6 +)$-- @& $'(!#'" '1&
"# @& '"&,&+"&(+1!) H##(+6 $8"&, ")& +$%& +)$--)$4&B(&&' (1-?)#1+&77"V
,&B*$,&)#1+&(6 $'(+1!) H##(+ +)$--)$4& @&&' +# ,&B*$,&)#1+&(./DE #G
+#%& E$,&)#1+&6 ,&+2&! #8 *) !) &!1, "? + ,&C1 ,&(6 $'(")& OD 4 FD# O6
5,#2, &"#, #, !!12 &, #8 ")& +$%& +)$--)$4& . 4&' .&'&,$- *'&,
&!1, "?6 ")& #'(,&+2&! #8 +1!) &%#4$- $'(&B*$,&)#1+ '.
+)$-- @& !#'("#'&($'(!#'" '1& 8#,!&6 8#, ")& ,&B*$,&)#1+ '.
#8 +1!) H##(+6 1'" - 8,&+) #'(@& . 4&' @? +#%& '&* 5,#2, &"#, #,
")&, 5&,+#'6 %$' '&,)&,& 'B@&8#,& 2,#4 (&(

;' ' L B ' ' (2C'V

'E /3f EDC21' /23Df 2#G /D^ C2H]' # E2OD /' D\I27 +2H]24DE

' '(' @&' "' 81,")&,' &'$!"&(6')$"' "'+)$--' @&' -$*81-' '' ")&' E$,&)#1+&' "#' +#,"6' +&2$,$"&6' 2$!:6' $'(' ,&B2$!:' $'?' H##(+6' $'(' "#' %$:&' +71!)' -$*81-' -"&,$" #'+' ")&,& '6' #,' ,,$'.&%&'"+' ")&,&#86' $+' %$?' @&' '&!&++$,?' & ")&,' 8#,' ")&' 5,&+&,4$" #'' #8' +1!)' H##(+6' #,' '' #,(&,'"#' ")&' $-&6') 2%&'"6' #,' -&.$-' 3 +2#+$-' #8' ")&' +$%&' 2,#4 (&(' ")$"' +1!)' H##(+' @&' ,&2$!:&(' '' ")&' +$%&' 5$!:$.&+' '' *) !)' ")&' +$%&' H##(+6' #,' +#%&' 5$,"' #8' ")&' *)#-&' T1$'" "?' #8' ")&' +$%&7 5$,!&-' #8' H##(+6' *&,&' %2#,"&(6' #,' '' 5$!:$.&+' #8' &'" ,&' T1$'" "?' &C1&-' ")&,&"#6' #,' '' +1!)' #")&,' 5$!:$.&+' $+' ")&' #%% ++#'&,+' #8' +' $>&+"?;+' 1+"#%+' +)$--' 2&,% "' X'#"' @&' '.' -&++' '' $'?' $+&6' 8' ")&' H##(+' @&' "#' @&' &92#,"&(' #,' "#' @&' ,&%#4&(' "#' $'#")&,' E$,&)#1+&6' ")$'' %$?' @&' ,&C1 ,&(' @?' $*' 8#,' ")&' %2#,"$" #'' #8' +1!)' H##(+['

'O 337D' ..' @ #D' /= 0' . /' &C /32^ 3 # 'G/2Z' ..' =IO'. /' 3 /DE

$'(' $-+#' '' ")&' E$,&)#1+&' "#' (,$*' #88' $'?' E '&' #,' $'?' 1' ' #8' ")&' (' 5-$'"$" #'+' '"#' ,&21"&(' T1$,"' #""-&+' #,' ,&21"&(' 5 '' #""-&+6' 8#,' ")&' 51,2#+&' #'-?' #8' @&'.' &92#,"&(' 8,#%' ")&' E$,&)#1+&' $'(' $-+#' '' ")&' E$,&)#1+&' "#' (,$*' #88' $'?' +1!)' 1,$' '"#' $+:+' !#'N "$ ' '.' '#' -&++' ")$"' *&'"?' H$--#'+' &$!)6' 8#,' ")&' 51,2#+&' #'-?' #8' @&'.' (+2#+&(' #8' $+' "#,&+' 8#,') 2+' $'(' $-+#' '' ")&' E$,&)#1+&' "#' (,$*' #88' $'?' #")&,' 2 , "+' '"#' ,&21"&(' T1$,"' #""-&+6' 1'(&,' +1!)' &.1-$" #'+' $+' ")&' #%% ++#'&,+' #8' 1+"#%Y' +)$--' 8,#%' %&' "#' %&' (,&!"6' 8#,' ")&' 51,2#+&' #'-?' #8' @&'.' &92#,"&(' 8,#%' ")&' E$,&N

' O &' /2#G6' Z 3"' @ #D'. /' &C /323 #

)#1+&' $'(' $-+#' '' ")&' E$,&)#1+&' "#' (,$*' #88' $'(' % 9' E ")' $'?' E '&' $'?' ,$'(?' +&!1,&(' '")&' +$%&' E$,&)#1+&6' '#"' &9!&&('.' ")&' 5,#2#," #'' #8' &'' H$--#'+' #8' ,$'(?' "#' '&')1'(,&(' H$--#'+' #8' E '&' $'(' $-+#' '' ")&' E$,&)#1+&' "#' 8--' 12' $'?' $+:+' #8' E '&' #,' 2 , "+' 8,#%' $'?' #")&,' $+:+' #8' ")&' +$%&6' ,&+2&!" 4&-?' +&!1,&(6' '' ")&' +$%&' E$,&)#1+&' $'(' $-+#' '' $'?' E$,&)#1+&' #8' +2&! $-' &!"' ?' "#'

'.77 IC' /' /2H]' ..'(2E]E' .'@ #D ' 32]D' 2OC7DE

,$!:' #88' $'?' E '&' 8,#%' ")&' &&+6' $'(' '' +1!)' E$,&)#1+&' "#' % 9' $'?' E '&+' #8' ")&' +$%&' #,"6' &,$+ '.' 8,#%' ")&' $+:+' $--' %2#,"' ,$'(+' $'(' $-+#' '' ")&' E$,&)#1+&' "#' "$:&' +1!)' %#(&,$"&' $%2-&+' #8' H##(+' $+' %$?' @&' $--#*&(' @?' ")&' #%% ++#'&,+' #8' +' $>&+"?;+' 1+"#%+6' *")#1"' '",?' $'(' *")#1"' 5$?%&'"' #8' 31"?6' &9!&2"' $+' ")&' +$%&' %$?' &4&'"1$--?' @&!#%&' 2$?$@-&6' $+' #'' $' 3&8 ! &'!?' #8' ")&' #,. '$-' T1$'" "?

) ' 73D/23 #' 3 ' OD' O2GD' #' GE' /' +2H]24D' OI3' 2HH /G #4' 3 ' EIH"' =D4I^ 723 #E' 2E' 3"D' (OO E^ E #D/E' E"27' G /DH3

' ' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(')$"' '#' -"&,$" #'' +)$--' @&' %$(&' '' $'?' +1!)' H##(+' #,' 5$!:$.&+6' '#,' +)$--' $'?' +1!)' E '&6' 1%6' ,$'(?6' #,' 2 , "+' @&' @#""-&(6' (,$*' '' #886' % 9&(6' #,' 8--&(' 126' '#,' +)$--' $'?' +1!)' $%2-&+' @&' "$:&'' &9!&2"' $8"&,' +1!)' #" !&+' . 4&'' @?' ")&' ,&+2&!" 4&' %2#,"&,+' #,' 5,#2, &"#,+' $'(' $"' +1!)' %&+' $'(' '' +1!)' $''&,6' $'(' 1'(&,' +1!)' &.1-$" #'+' $'(' &+", !" #'+6' $+' ")&' #%% ++#'&,+' #8' 1+"#%+' +)$--' 8,#%' %&' "#' %&' ,&C1 ,&' $'(' (,&!"

=DC2H] #4' #C/ CD/' +2H]24DE

' '(' *)&,&$+' "' %$?')$22&'6' ")$"' $8"&,' ")&' &2$!: '.' '"#' 2,#2&,' 5$!:$.&+' #8' $'?' 5$,!&-' #8' H##(+' *) !)' '$4&' @&&'' 1'2$!:&(' $'(' +&2$,$"&(' #,' (,$*'' #88' 8,#%' ")&' #,. '$-' 5$!:$.&' '' $'?' #8' ")&' $+&+')&,& 'B@&8#,&' 2,#4 (&(' 8#,6' ")&,&' %$?' ,&%$' '+#%&' +1,2-1+' T1$'" "&+' #8' ")&' ,&+2&!" 4&' 5$,!&-+' #8' +1!)' H##(+6' *) !)' %$?' '#"' @&' +188 ! &'"' "#' %$:&' #,' 8--' 12' $'?' '&' #8' +1!)' 2,#2&,' 5$!:$.&+6' #,' "' %$?')$22&'' ")$"' +#%&' 5$,"' #8' +1!)' H##(+6' *)&'' +&2$,$"&(' 8,#%' #")&,' 5$,"+6' %$?' @&' +1!)' &81+&6' #,' ' '+#' ($%$.&(' $' "$"&' $+' "#' @&' *#,")-&++6' #,' ")$"' ")&' "#"$-' T1$'" "?' #8' +1!)' 5$,!&-

.

$ ' $ B ' ' (2C V

\ 'H##(+' %$?' @&' ,&(1!&(' @?' ")&' &2$,$" #'' #8' 3 ,'' #,' &(%&' "6' #,'
@?' ")&' 3 +2&,+ #'' #8' 31+'' #,' #")&, * +&]' '(' *)&,&$+' ")&' 31" &+'
2$?$@-&' #'' +1!)' H##(+' %$?')$4&' @&&'' -&4 &(' $'' $' $"&7')$4 ' .'
K,&.$,(' "#' $' >1+'' --#*$'!&' 8#,' ")&' "$"&' '' *) !)' +1!)' H##(+'$,&'
%2#,"&(6' $'(' '' +' '#'' 2,#2&,' ")$'' $'?' %$'18$!"1, ' .'5,#!&++' +)#1-('
@&' 2&,8#,%&(' '' +1!)' E$,&)#1+&' "#' ")&' 3&", %&''' #8' ")&' &4&'1&
M@&' '' ")&,&8#,&' &'$!"&(6')$'' $8"&,' +1!)' H##(+')$4&' @&&'' +#' ,&2$!:&('
'' 2,#2&,' 5$!:$.&+6' '' +)$--' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' #8' ")&'
K 1+"#%+6' $'' ")&' &C1&+'' #8' ")&' %2#,"&,' #,' 5,#2, &"#,' #8' +1!)' H##(+6'
"#' !$1+&' #,' 2&,% '' $'?' #8' +1!)' ,&81+&6' ($%$.&(6' #,' +1,2-1+' H##(+' '#''
!#'"$ '&(' '' $'?' #8' +1!)' 5$!:$.&+6' "#' @&' (&+",#?&(' ' $'(' 8' ")&' H##(+'
@&' +1!)' $+' %$?' @&' (&-4&,&(' 8#,' #,$&' V+&6' ")&' 31" &+' +)$--' @&'
%%&($"&-?' 2$ (' 12#'' $'?' 5$,'' #8' +1!)' 1,2-1+' $+' %$?' ,&%$ '6' $'('
")&' +$%&' +)$--' @&' (&-4&,&(' 8#,' #%&' V+&' $!!#,(' .-?' ' $'(' 8' ")&?'
@&' +1!)' $+' %$?' '#'' @&' +#' (&-4&,&(6' +1!)' 1,2-1+' $+' %$?' +#' ,&%$ ''
+)$--' @&' (+2#+&(' #8' 8#,' ")&' 51,2#+&' #8' 92#,"$" #'' '' +1!)' $''&,'
$+' ")&' #%% ++ #'&,+' #8' ")&' 1+"#%+' +)$--' (,&!" ' $'(' ")&,&12#''
")&' T1$'" "?' !#'"$ '&(' '' &$!)' #8' +1!)' 2,#2&,' 5$!:$.&+' +)$--' @&'
$+!&,"$ '&(' $'(' %$,:&(' 12#'' ")&' +$%&6' $'(' ")&' 3&8 ! &'!?' +)$--' @&'
$+!&,"$ '&(' @?' $' #%2$, +#'' #8' ")&' "#"$-' T1$'" "?' '' +1!)' 2,#2&,'
5$!:$.&+' * ")' ")&' "#"$-' T1$'" "?' 8 ,+'' *$,&)#1+&(6' $'(' ")&' 5,#2#,N
"#'' *) !)' +1!)' 3&8 ! &'!?' %$?' @&$,' "#' ")&' T1$'" "?' '' &$!)' 5$!:$.&'
+)$--' $-+#' @&' %$,:&(' #'' ")&' +$%&6' $'(' $((&(' "#' +1!)' T1$'" "?6' $'('
")&' "#"$-' +)$--' @&' (&&%&(' "#' @&' ")&' %2#,"&(' #'"&'"+' #8' +1!)'
5$!:$.&6' $'(' @&')&-(' +1@>&!'' "#' ")&' 81--' 31" &+' #8' %2#,"$" #'6'
&9!&2'' $+' #")&,* +&' '' $'?' $+&' 2,#4 (&(' @?' ") +' !"]' 5,#4 (&('
$-*$?+6' ")$'' '' +)$--' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+'
1+"#%+' "#' $!!&2'' ")&' @$'(#'%&'"6' 8#,' ")&' 31" &+6' #8' $'?' T1$'" "?'
#8' #@$!!#' #,' #88&&6' #,' 5&22&,' #,' #!#$6' #,' &&+' #8' E '&6' $'(' $-+#'
#8' $'?' *)#-&' 5$!:$.&+' #8' #")&,' H##(+6' $'(' "#' !$1+&' #,' 2&,% '' ")&'
+$%&' "#' @&' (&+",#?&(6' $'(' "#' (&(1!'' +1!)' T1$'" "?' #8' #@$!!#' #,'
#88&&6' #,' 5&22&,' #,' #!#$6' #,' ")&' #'"&'"+' #8' +1!)' *)#-&' 5$!:$.&+6'
8,#%' ")&' "#"$-' T1$'" "?' #8' ")&' +$%&' %2#,"$" #'6' '' !#%21" ' .' ")&'
%#1'' #8' ")&' 3&8 ! &'!?' #8' +1!)' "#"$-' T1$'" "?

<' '(' @&' '' 81,")&,' &'$!"&(6')$'' '#' #,& .'' $+:+6' #""-&+6' #,:+6' 5$!:$.&+6' #,' $"&, $-+' *)$"&4&,6' &9!&2'' $'?' '' *) !)' +1!)' #%&' H##(+' +)$--')$4&' @&&'' %2#,"&(' $'(' *$,&)#1+&(6' +)$--' @&' 1+&(' '' ")&' ,&2$!:' .' #8' $'?' H##(+' '' ")&' E$,&)#1+&6' 1'-&++' ")&' 81--' 31" &+' +)$--')$4&' @&&'' 8 ,+'' 2$ (' ")&,&#'

<' '(' @&' ''81,")&,' &'$!"&(6')$'' '' +)$--' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' #8' ")&' 1+"#%+' "#' 2&,% '' $'?' "188+' #,' $@, !+' #8' -:6' '&'6' #""#'6' #,' E##-6' #,' #8' $'?' 9"1,&' #8' ")&%6' #,' #8' $'?' #8' ")&%6' *")' $'?' #")&,' $"&, $-6' $-6' "#' @&' "$:&'' #1' #8' E$,&)#1+&' "#' @&' !-&$'&(6' ,&8,&+)&(6' (?&(6' +"$ '&(6' #,' !$-&'(&,&(6' #,' "#' @&' @-&$!)&(' #,' 2, '"&(6' * ")#1'' 5$?%&''' #8' 31"?' #8' 1+"#%+6' 1'(&,' &!1, "?6' '&4&,")&-&++6' @?' #'(' "#' ")&,' $'" +8$!" #'6' ")$'' +1!)' H##(+' +)$--6' @&' ,&"1,'&(' "#' ")&' E$,&)#1+&' * ") ' '' ")&' %&' ")$'' ")&?' +)$--' $22#'"' $'('' ")$'' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' '' - :&' $''&,' $'(' 1'(&,' - :&' &!1, "?6' "#' 2&,% '' $'?' !&6' ")&' 5,#(1!&' #8' 5-$!&+' * ")' '' ")&' %' "+' #8' ")&' . ' ' #%2$'?;+')$,"&,6' "#' @&' (&-N
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.3D/' /DC2H]^
#4!' G2O24DG'
+2/3E' O26' OD'
GDE3/ 6DG

* EC E27'
.'EI/C7IE'
Y I2#3 36

Y I2#3 3 DE' #
#DZ'+2H]24DE'
3 'OD' O2/]DG!'
2#G' *D. ^
H D#H6' 3 'OD'
2CC /3 #DG

O2#G #^
O D#3' .'
GE' . /'
3"D' * I36

!$+o7ZX8='
OD' IEDG'. /'
/DC2H] #4'
I#7DEE' * I3 DE'

7]E!' #D#E!'
H' 3 'OD'GD^
7 FD/DG' I3' .'
@2/D" IED!'
3 ' OD' H7D2#DG'
H' /'O7D2H"^
DG'N 27E ' = HD'
.'3"D' 2E3 '
#G DE' 3 'OD'
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4&,&(#1" #8 E$,&)#1+&A "# @& !-&$'&(6 %$: '.'+1!) --#*$'!& 8#,
E$+"& $+ "# ")& +$ (#%% ++ #'&,+ +)$-- $22&$,"# @& ,&$+#'$@-&

(CCD/ ' /D 026 OD 3]D#)# &7'#@ E O D73DG

< '(@& " 81,")&, &'$!"&(6)$" " +)$-- @& -$*81- 8#, ")& %2#,"&, #, 5,#2, &"#, #8 $'? #22&, ,& *$,&)#1+&("# . 4& #" !& ")& 2,#2&, 88 !&,+ #8 ")& 1+"#%+ #8) + '"&'" #' "# "$:& 1!) 7& #1" #8 E$,&)#1+& "# @& +%&-"&(6 +"$" '. ' +1!) #" !& ")& T1$'""? #8 #22&, !#%21"&("# @& !#'"$ '&(' +1!) ,&6 $'((&- 4&, '."# +1!) 88 !&,+ +188 ! &'" $%2-&+ #, 2&! %&'+ 8#, $+!&8B "$ ' '. @? 2,#2&, ++$?+6 $" ")& 92&'!& #8 ")& 5,#2, &"#,6 +1!) T1$'""? #8 #22&,6 $'(. 4 '. +188 ! &'" &!1, "? #? #'(8#, ,&"1, ' '.+1!) T1$'""? #8 #22&, '"# ")& E$,&)#1+& $'(8 +1!) 88 !&,+ +)$-- @& +$" +8 &(#8 ")& $,'&++ #8 ")& $%2-&+ #, 2&! %&'+ #8 +1!) ,&6 $'(#8 ")& ++$?+ %$(& #8 ")& +$%&6 6$'(#8 ")& &!1, "? . 4&'6 ")&? +)$-- (&- 4&, +1!) ,& 8#, ")& 51,2#+& #8 @& '. +%&-"&($+ $8#,&+$ (] 5,#4 (&($-*$?+6 ")$" 8 $'? #22&, ,& '"&'(&("# @& +# +%&-"&(+)$-- @& %2#,"&('"# $'? 5#," *)&,& +1!) ,& #, *)&,& #22&, !$''#" @& *$,&)#1+&(6 ")& +$%& %$? @& &'"&,&($+ @& '. "# @& *$,&)#1+&($" ")& 5#," $" *) !) ")& #22&, $8'&,A +"'&-"B '. + "# @& *$,&)#1+&(6 $'(+1!) ,& +)$-" ")&,&12#' @& "$:&' $!!#1'" #8 $'((&- 4&,&(8#, ")& 51,2#+&+ $8#,&+$ (6 ' - :& $''&, $+ 8 ")& +$%&)$(@&&' *$,&)#1+&(] 5,#4 (&($-+#6 ")$" $-- #22&, +# 2,#(1!&(@? +%&-" '. +)$-- @& (&&%&("# @& #22&, %2#,"&(6 $'(+)$-- @& *$,&)#1+&($+ +1!)

GE 77 I7]' GD7 ^ FD/DG

<R '(@& " 81,")&, &'$!"&( )$" '# 5$,!&-+ #8 H2#(+ +# *$,&)#1+&(*) !) *&,& %2#,"&(1-: +)$-- @& (&- 4&," 6 &9!&2" ")& *)#-& T1$'""? #8 &$!) 5$,!&-6 #, $ T1$'""? '#" -&++ ")$" '& #' E& .)"6 1'-&++6@? +2&! $- &$4& #8 ")& 2,#2&, 88 !&,+ #8 ")& 1+"#%+

+2H] 24DE 3 OD 02/]DG OD. /D *D FD/6

< '(@& " 81,")&, &'$!"&( )$" '# H##(+ +# *$,&N)#1+&(+)$-- @& (&- 4&,&(6 1'-&++ ")& +$%& #, ")& 5$!:$.&+ !#'"$ '. ")& +$%& +)$--)$4& @&&' %$,:&(+1!) (+" '.1 +) '. $''&, $+ ")& #%% ++ #'&,+ #8 $>&+"?;+ 1+"#%+ +)$-- (&&% '&!&++$,? $'(2,$!" !$@-&6 $'(+)$-- 8,#% %& "# %& (,&!"

*DH/D2ED 2#G #H/D2ED 026 OD 2EHD/^ 32 #DG 2#G 277 ZDG I#^ GD/ D4I72 3 #E .3"D /D2EI/6

'(*)&,&$+ +#%& #,"+ #8 H##(+ $,& - $@-& %& "# (&!,&$+& $'(+#%& "# '!,&$+&6 $'(+#%& "# -1!"1$" #' #8 T1$'""6 @?")& 88&!" #8 ")& "%#+2)&,& $'(#")&, '$"1,$- $1+&+6 $'(%$? @& '&!&++$,? +#%& $+&+ ")$" ")& 31" &+ +)#1-('#" @& !)$,.&(12#' ")& 3&8 ! &'!? $, + '. 8,#% +1!) $1+&+ @& ")&,&8#,& &'$!"&( )$" +)$-- @& -$*81- 8#, ")& +$ (#%% ++ #'&,+ #8 + $>&+"?;+ ,&$+1,?"# %$:& &.1-$" #'+ 8#, $+!&,"$ ' '.")& %#1" #8 +1!) 3&!,&$+& #, '!,&$+& #8 ")& T1$'""? #8 $'? 2$," !1-$, #,"+ #8 H##(+6 $'("# (,&!" *)$" 5,#2#,"#' $'? @$"&%&'" #8 31"? 2$?$@-& 1'(&, ") + !" 8#, 3&8 ! &'! &+ +)$--6 12#' ")& 92#,"$" #' #8 $'? +1!) H##(+6 @& %$(& #' $!!#1'" #8 $'? +1!) 3&!,&$+&] 5,#AB 4 (&($-*$?+6 ")$" 8 +1!) H##(+ @& -#(.&('. E$,&)#1+& (&!-$,&(")& ,(&, #8 22# '"%&'" "# @& #8 +2&! $- &!1, "?6 '# 31"?+)$-- @& !)$,.&(8#, $'? 3&8 ! &'!? %#1'" *)$"&4&, #8 3&8 ! &'!? #8 $'? +1!) H##(+ #' ")& 92#,"$" #' ")&,&#86 &9!&2" '. $+&+ *)&,& 1+2 ! #' +)$--

) *I36 # *D. H D#H6 . GE D&^ C /3DG ./ O @2/D" IEDE GDH72/DG . ECDH 27 DHI^ / 36

+)$--ˢ $, +&ˢ ")$"ˢ 5$,"ˢ #8ˢ +1!)ˢ H##(+ˢ)$+ˢ @&&'ˢ !-$'(&+" '&-?ˢ !#'4&?&(ˢ $*$?6ˢ '#,ˢ +)$--ˢ $'?ˢ +1!)ˢ H##(+ˢ X1'-&++ˢ ")&?ˢ @&ˢ E '&ˢ #,ˢ 2, "+[@&ˢ %&$+1,&(6ˢ !#1'"&(6ˢ *& .)&(6ˢ #,ˢ .$1.&(ˢ 8#,ˢ 92#,"$" #'6ˢ &9!&2"6ˢ 'ˢ +1!)ˢ $+&+ˢ #8ˢ 1+2 ! #'

ˢ 5,#4 (&(ˢ $-*$?+6ˢ $'(ˢ @& "ˢ 81,")&,ˢ &'$!"&(ˢ)$"ˢ 8#,ˢ $'?ˢ E '&6 2, "+6ˢ #88&&6ˢ #!#$ˢ 1"+6ˢ #,ˢ 5&22&,ˢ -#(.&(ˢ 'ˢ E$,&)#1+&+6ˢ '#"ˢ @& '.ˢ (&!-$,&(ˢ "#ˢ @&ˢ #8ˢ +2&! $-ˢ &!1, "?6ˢ ")&ˢ 8#--#* '.ˢ --#*$'!&+ˢ 8#,ˢ '$"1,$-ˢ E$+"&ˢ 'ˢ 2,#2#,"#'ˢ "#ˢ ")&ˢ %&ˢ (1, '.ˢ *) !)ˢ $'?ˢ +1!)ˢ H##(+ˢ +)$--ˢ)$4&ˢ ,&%$ '&(ˢ 'ˢ ")&ˢ E$,&)#1+&ˢ +)$--ˢ @7& %$(&ˢ 12#'ˢ ")&ˢ 92#,"$" #'ˢ ")&,&#8>ˢ $!!#,('.ˢ $+ˢ +1!)ˢ --#*$'!&+ˢ $,&ˢ)&,& 'B$8"&,ˢ ,&+2&!" 4&-?ˢ +&"ˢ 8#,")ˢ ˢ X")$"ˢ +ˢ "#ˢ +$?6[

77 Z2#HDEˢ . /ˢ #231/27ˢ @2E3Dˢ .ˢ @ #D!ˢ C / 3E!ˢ Hˢ # @2/D^ " IEDEˢ # 3ˢ .ˢ ECDH 27ˢ DHI^ /36

E '&6ˢ 12#'ˢ &4&,?ˢ $+:ˢ ˢ

	ˢ M8#,ˢ $'?ˢ %&ˢ '#'ˢ &9!&&('.ˢ '&ˢ &$,ˢ	Bˢ	'&ˢ H$--#'
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	&9!&&('.ˢ *#ˢ &$,+ˢ	Bˢ	*#ˢ H$--#'+
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	Gˢ 8#,ˢ $'?ˢ %&ˢ '#'ˢ &9!&&('.ˢ 9ˢ #'")+ˢ	B	'&ˢ H$--#'
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#88&&6ˢ	#!#$ˢ 1"+6ˢ 5&22&,6ˢ 8#,ˢ &4&,?ˢ '&ˢ)1'(,&(ˢ		
	5#1'(+6ˢ $'(ˢ +#ˢ 'ˢ 2,#2#,"#'ˢ 8#,ˢ $'?ˢ -&++ˢ		
	T1$'"ˢ "?		*#ˢ 5#1'(+

ˢ '(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(6ˢ)$"ˢ 'ˢ !$+&ˢ "ˢ +)$--ˢ $"ˢ $'?ˢ %&ˢ)$22&'ˢ ")$"ˢ $'?ˢ %@&LL-&%&'"6ˢ E$+"&6ˢ 2#-6ˢ #,ˢ 3&+",1!" #'ˢ +)$--ˢ @&ˢ %$(&ˢ #8ˢ #,ˢ 'ˢ $'?ˢ H##(+ˢ #,ˢ &,!)$'(L&ˢ *) !)ˢ +)$--ˢ @&ˢ *$,&N)#1+&(ˢ 'ˢ E$,&)#1+&+ˢ 1'(&,ˢ ")&ˢ 1")#, "?ˢ #8ˢ ") +ˢ !"6ˢ @?ˢ #,ˢ "),#1.)ˢ $'?ˢ *-81-ˢ +!#'(1!"ˢ #8ˢ $'?ˢ 88!&,ˢ #,ˢ 88!&,+ˢ #8ˢ 1+"#%+ˢ #,ˢ 9! +&6ˢ +1!)ˢ 88!&,ˢ #,ˢ 88!&,+ˢ +)$--ˢ @&ˢ (&&%&(ˢ .1-"?ˢ #8ˢ $ˢ +(&N %&$'#,6ˢ $'(ˢ +)$--ˢ 12#'ˢ #'4!"#'ˢ +188&,ˢ +1!)ˢ 51'+)%&'ˢ $+ˢ %$?ˢ @&ˢ '8-!"&(ˢ @?ˢ $*ˢ 'ˢ $+&+ˢ #8ˢ +(&%&$'#,ˢ $'(ˢ 8ˢ +1!)ˢ 88!&,ˢ +)$--ˢ @&ˢ +#ˢ 2,#+&!1"&(ˢ "#ˢ #'4!"#'ˢ @?ˢ ")&ˢ %2#,"&,6ˢ #'+ .'&&6ˢ #,ˢ 5,#N 2, &"#,ˢ #8ˢ ")&ˢ H##(+ˢ #,ˢ &,!)$'(L&ˢ +#ˢ &%@&LL-&(6ˢ *$+"&(6ˢ +2#-&(6 #,ˢ (&+",#?&(6ˢ ")&'ˢ $'(ˢ 'ˢ +1!)ˢ $+&ˢ '#ˢ 31"?ˢ #8ˢ 1+"#%+ˢ #,ˢ 9! +&6ˢ +)$--ˢ @&ˢ 2$?$@-&ˢ 8#,ˢ #,ˢ ',&+2&!"ˢ #8ˢ +1!)ˢ H##(+ˢ #,ˢ &,!)$'(L&ˢ +#ˢ &%@&LL-&(6ˢ *$+"&(6ˢ +2#-&(6ˢ #,ˢ (&+",#?&(6ˢ $'(ˢ '#ˢ #,8& "1,&ˢ #,ˢ & L1,&ˢ +)$--ˢ "$:&ˢ 2-$!&ˢ #8ˢ $'?ˢ H##(+ˢ $'(ˢ &,!)$'(L&ˢ +#ˢ *$,&)#1+&(ˢ 'ˢ ,&+2&!"ˢ #8ˢ $'?ˢ 3&8 ! &'!?ˢ !$1+&(ˢ @?ˢ +1!)ˢ %@&LL-&%&'"6ˢ E$+"&6ˢ 2#-6ˢ #,ˢ 3&+",1!" #'6ˢ $'(ˢ ")&ˢ 3$%$.&ˢ #!!$+ #'&(ˢ @?ˢ +1!)ˢ %@&LL-&N %&'"6ˢ E$+"&6ˢ 2#-6ˢ #,ˢ 3&+",1!" #'ˢ #8ˢ +1!)ˢ H##(+ˢ #,ˢ &,!)$'(L&ˢ +)$--ˢ @&ˢ ,&2$ (ˢ $'(ˢ %$(&ˢ .##(ˢ "#ˢ +1!)ˢ %2#,"&,6ˢ #'+ .'&&6ˢ #,ˢ 5,#N 2, &"#,ˢ @?ˢ ")&ˢ #%% ++ #'&,+ˢ #8ˢ 1+"#%+ˢ #,ˢ 9! +&6ˢ 1'(&,ˢ +1!)ˢ ,(&,+6ˢ &.1-$" #'+6ˢ $'(ˢ 3 ,&!" #'+ˢ $+ˢ +)$--ˢ @&ˢ 8#,ˢ ")$"ˢ 51,2#+&ˢ %$(&ˢ $'(ˢ . 4&'ˢ @?ˢ ")&ˢ #%% ++ #'&,+ˢ #8ˢ +ˢ $>&+"?;+ˢ ,&$+1,?ˢ #,ˢ $'?ˢ),&&ˢ #8ˢ ")&%

#ˢ (2EDEˢ .ˢ O ODdd7D^ O D#3ˢ 2#Gˢ @2E3D 3"/ I4"ˢ B E^ H #G I H3ˢ .ˢ '.. HD/E!ˢ *2 0 24DEˢ 3ˢ ODˢ 0 2GDˢ 4 Gˢ 3 ˢ 3"Dˢ +/ C/ D3 /

'# #3/6 #G%. /GID E" CC #4 2#G 72#G #4 E"277 @& 4 FD#!

' (*)&,&$+ " +&92&(&' "# %$:& &.1-$" # ' + 8#, ")& W721" ' . #8 +1!) H##(+ "# 5$,"+ @&?#' (")& &$+ $+)$4& M@&&" %2#,"&('"# ")& V' "&(D ' .(#% 8,#% 5$,"+ @&?#' (")& &$+6 $' (*$ &) (V+&(* ")#1" 5$?%&'" #8 $'? 8_1"? # ' ")& '>22,"$" # ' ")&,&#86 #, '#" * ")+"$' (' . ")$" ")& +$%& ' $? @& 2,#) -("&("#B @& 1+&(: ")& V' "&(D ' .(#% @& " ")&,&8#,& &)$!"&( )$" 12# ' ")& ' ",? #1"*$,(+ #8 $'? H##(+ "# @& &92#,"&(8,#% ")& E$,&)#1+& "# 5$,"+ @&?#' (")& &$+6 $' (@&8#,& #! :&" @& .,$'"&(6 J@& 8&,+#$ ' *)#+& $%& ")& +$%& @& &'"&,&(+)$-- . 4& &!1, "? @? #' (' 3#1@-& ")& <$-1& #8 +1!) H##(+6 * ") '& +188 ! &'" 1,&"? ")$" +1!) H##(+ +)$-- @& (1-? +) 22&($' (&92#,"&(6 $' (+)$--)& -$' (&($" ")& 5-$!& 8#, *) !) ")&? @& &'"&,&(#1"*$,(+6 #, #")&, * +& $!N !#1'"&(8#, "# ")& $" +8$!" # ' #8 ")& #%% ++ # ' &,+ #8 + $>&+"?;+ 1+"#%+

#G . / DD.' 2#G + /]' D& C#/3DG ./ O @2/D" IED

' 5,#4 (&($-*$?+6 $' (@& " 81,")&, & '$!"&(6)$" 12# ' ")& '",? #1"*$,(+ #8 $'? +$-"&(&&8 #, +$-"&("A#,: " @& &92#,"&(8,#% ")& E$,&)#1+& "# 5$,"+ @&?#' (")& &$+6 $' (@&8#,& #! :&" @& .,$'"&(6 ")& 5&,+#' : *)#+& $%& ")& +$8-& @& &'"&,&(+)$-- . 4& &!1, "? @? #' (' ,&@-& ")& <$-1& #8 ")& H##(+6 * ") *# +188 ! &'" 1,&" &+6 #8 *)#% ")& $+"&, #8 ")& &92#," ' .) 2 +)$-- @& '&6 ")$" +1!) &&8 ;5#, : +)$-- @ (1"?+) 22&($' (&92#,"&(6 $' (")$" '# 5$," ")&,&#8 +)$-- @& !#'+1%&(#'@#$,(+1!)) 26 $' (")$" ")& +$%& +)$-- @& -$' (&($" ")& 5-$!& 8#, *) !) " @& &'"&,&(#1"*$,(+ $' (")$" $ &," 8 !$"& #8 +1!) -$' (' . +)$-- @& 2,#(' !&(* ") $,&$+#' $@-& %&6 $! !#,(' . "# ")& <#?$.&6 "# @& 8 9&(@? ")& #%% ++ # ' &,+ #8 ")& 1+"#%+6 $' (%&' " # '&(' ")& #'(6 +1!) &," 8 !$"& "# @& + . '&(@? ")& 88 !&,+ #8 ")& 1+"#%+ #, #")&, (88 !&,6 8 ")& H##(+ @& -$' (&($" $ 5-$!& ")& (3#% ' # ' +6 #, @? ")& # ' +1-6 8 ")& H##(+ @& -$' (&($" $ 5-$!& '#" * (3#% ' # ' +6 ,")$" +1!) H##(+ 7)$ - @& #")&,N

DD.' 2#G + /]' D&^ C /3DG ./ O @2/D" IED # 3 3 ' OD IEDG 2E 3 /DE

* +& $!!#1'"&(8#, "# ")& $" +8$!" # ' #8 ")& +$ (#%% ++ # ' &,+ $' (+1!) $+"&, +)$-- %$:& $' (+ . ' $ 3&!-$,$" # ' ")$" +1!) &&8 #, 5#, : + "# @& -$(& " # ' @#$,(+1!)) 2 $+ &, !$) $' (L& "# @& !$,, &("# $' (-$' (&($" 5$,"+ @&?#' (")& &$+6 $' ('#" +# ' ' 8#, ")& +$ (+1!)) 2 +)$-- '#")$4& #' @#$,($' (")$" %& #8 -&$,' ' . #1"*$,(+ $' (@& 122-? #, "#! : #8 !8 2,5#, : $! !#,(' . "# ")& ' "&' " # ' #8 <#?$.& @#,'& 12# ' ")& < !"1$-- ' . --6 ")& $+"&, #8 +1!) 2 +)$-- 8#,8& ' 1%6 #8 ' &)1' (,&(5#1 ' (+

=DE3/ H3 # DE 3 ' 3"D E7D .' B2#

< ' (@& " 81,")&, & '$!"&(6)$" '# H##(+ +)$-- @& 8 9N 2#,"&(8,#% ")& E$,&)#1+& "# ")& &9!&2" H" H##(+ ..' %2#,"&('"# ")& +$ (+-$' (* ") !& ' !& #8 ")& #%B % ++ # ' &,+ #8 + $>&+"?;+ 1+"#%+6 $' (' 4 ,"1& #8 $'? E I H" !& ' !& 8 ,+" #@"$ '&(

GE /D' O FDG ./ O 8#,7),%7" I#GD/' (2/D;' .' (IE3 OE ' .. HD/E

< ' (@& " 81,")&, & '$!"&(6)$" $ - H##(+ "$:&' 8,#% ")& E$,&)#1+& 8#, ' &%#4$- #, 8#, 92#,"$" # ' +)$-- @& ,&%#4&(# , +@$E)& !$,, &("# @& +) 22&(6 1' (&, ")& $,& #, * ") ")& 1")#, "? #, 5&,% ++ # ' #8 ")& 2,#2&, 88 !&, #8 ")& 1+"#%+6 $' ("+1!) $+"&, $' (#, @? +1!) 2 +)$-- $! !#,(' . "# ")& %&6 $' (@? +$!: #8 2$!&+ #8 %&6 $' (@? +$! : ")& #%% ++ # ' &,+ #8 ")& 2,#2&, 88 !&, #8 ")& 1+"#%+ +)$-- $1")#, L&6 2&,% "6 #8 (,&!" $' ($-- +1!) H##(+ '#" +# ,&%#4&(#, &92#,"&(+)$-- @& 8#,8& "&(

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< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' "' +)$--' '#"' @&' -$*81-' 8#,' " CE'"#' @&
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92#,"$" #'' "#' 5$,"+' @&?#'(' ")&' &$+' $'?' H##(+' +#' *$,&)#1+&(6' '' D&C /3 #4'
$'?')2' *) !)' +)$--' '#"' @&' #8' ")&' 1,")&'' #8' &4&'"?' #' ' #,' Z2/D" IEDG'
12*$,(+' GE

< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' $--' H##(+' #,' &,!)$'B' GE'72#GDG'
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")&' 5,#2, &"#,+' #8' ")&' +$ (' 3#!:+6' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"6' ! $6'6+' 8S,'
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")&,&'6' #,' $' &," 8 !$"&' #8')&,' -&$,$'!&' '' @$--$+'6' $+' ")&' $+&' %$?'
@&' $'(' 8' ")&') 2' +)$--' (&2$," * ")#1'' +1!)' -&$,$'!&6' #,' 8' ")&' +D#2736'. /' # 3' H7D2/ #4!'
$+"&,' +)$--' (&- 4&,' $' 8$-+&' #'"&'"6' #,' +)$--' '#'' ",1-?' $'+*&,' ")&' <
T1&+" #'+' (&%$'(&(' #8') %6')&' +)$--' 8#,8&' ")&' 1%' #8' '&')1'(,&('
5#1'(+

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' '#' H##(+' +)$--' @&' +"$"&(' '' GE' # 3'
+1!)' &," 8 !$"&' #8' -&$,$'!&' #8' $'?') 2' 8,#%' $'?' (' 5#++&++ #'' E323DG' #'
'' * '"#' @&' ")&' 5,#(1!&' #8' +1!)' 5#++&++ #'+' 1'-&++' +1!)' H##(+' (D/3 . H23D' 3 '
+)$--')$4&' @&&'' &92,&++-?' +"$"&(' +#' "#' @&' '' ")&' '",?' 1" *$,(+' #8' OD' +/ GIHD'
")&' +$%&' ' $'(' ")$'' $--' H##(+' '#'' &92,&++-?' +"$"&(' '' +1!)' &," 8 !$"&' .' / 3 E"'
#8' -&$,$'!&' "#' @&' ")&' 5,#(1!&' #8' ")&' (' 5#++&++ #'+' '' * ' + EEDEE #E!'
+)$--' $'' ")&' 5-$!&' #8' %2#,"$" #'' '' $'?' #")&,' +1!)' 5#++&++ #'+6' #,' 3 ' OD' GDD O DG'
'' ")&' V' "&(' D '.(#%6' @&' (&&%&(' "#' @&' #8' #,& .'' 5,#(1!" #' .'A /D 4#' +/ GIH3 #

' 5,#4 (&(' $-*$?+6' $'(' @&' '' 81,")&,' &'$!"&(6')$'' *)&'&4&,')DZ. I#G^
$'?') 2' +)$--' @&' !-&$,&(' #1'' 8,#%' $'?' 5#,'' '' 9 $ '#,' '' 72#G' A E" #4'
$'?' #")&,' 5$,'' #8' +' $>&+"?;+' 3#%' '#'+6' 8#,' ")&' +)&, &+' #'' ")&' (D/3 . H23DE' #'
$':+' #,' #$+"+' #8' 5 e 8 '#,' " '#,' ")&' 3&2&'(&'! &+' 7 DI' .' (7D2/^
")&,&#86' * ")#1'')$4 '.' #'' @#$,(' $'?' ," !-&' #8' ,$88 !6' X&9!&2'' #'-?' 2#HD!' GI / #4'
+1!)' 5,#4 + #'+6' &"+6' $!:-&6' $'(' #")&,') '.+' $+' $,&' 1+1$--?' &%N 3"D' A E" #4'
2-#?&(' '' $'(' $@#1'' ")&' +$ (' +)&,?6' $'(' 8#,' ")&' #'(1!'' $'(' !$,,?7' D2E #
'.' #'' #8' ")&' +$%&6[' ")&' $+"&,' #8' $'?' +1!)') 2' +)$--' @&' &'" "-&(' "#'
(&%$'(' 8,#%' ")&' #--&!"#,' #,' #")&,' 2, '! 2$-' 88 !&,' #8' ")&' 1+"#%+'
$'' +1!)' 5#,'' $' &," 8 !$"&' 1'(&,') +' $'(' ")$'' +1!)') 2')$")' @&&''
+2&! $--?' !-&$,&(' #1'' 8#,' ")&' 9 8 ' +)&,?' $'(' +1!)' &," N
8 !$"&' +)$--' @&' '' 8#,!&' 8#,' ")&' +) '.' &$+#'' 8#,' ")&' &$,' '' *) !)'
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'' $'?' 5#,'' '' ")&' +$ (' #-#'?' #8' 9 $ '#,' "+' 3&2&'(&'! &+6'
#8' $'?') 2')$4 '.' #'' @#$,(' $'?' +1!)' &," 8 !$"&' $+' $8#,&+$ (6' $B'
&2#,'' ")&,&#8' +)$--' @&' %$(&' @?' ")&' $+"&,' #8' +1!)') 2' "#' ")&'
2, '! 2$-' 88 !&,' #8' ")&' 1+"#%+' $'' +1!)' 5#,"6' $'(' $--') 2+')$4 '.'
+1!)' &," 8 !$"&' *) !)')$+' @&&'' +#' ,&2#,"&(6' $'(' @& '.' $!"1$--?' &'N
.$.&(' '' ")&' +$ (' +)&,?6' #,' '' !$,,? '.' #$+"* +&' "#' @&' -$'(&(' #,'
21'' #'' @#$,(' $'?' #")&,') 2+' &'.$.&(' '' ")&' +$ (' +)&,?' $'?' +)6'
-6' $-"6' 5,#4 + #'+6' #,' #")&,' &!&++$, &+' 8#,' ")&' V+&' $'(' 51,2#+&+'
")&,&#86' +)$--' @&' &9&%2'' 8,#%' $--' @- .$" #'' "#' %$:&' $'' '",?' $'' #,

3 3"D #G
.3"D D2E #
3"D (D# . H23D
3 ' OD GD'
7 /D/DG IC
" CE 3/2G #4!
3 '. /.D 3 3"D /
(D/3 . H23D

#@"$ '' $'?' -&$,$'!&' 8,#%' $'?' 1+"#%' #1+&' $" 9 $ ' 12#'' ,, 4$-' 7" #,' 3&2$,"1,&' 8,#%' $'?' #8' ")&' 5#,"+' #,' $,@#1,+' #8' ")&' +$ (' #-#'?' #,' "+' 3&2&' '(&' ! &+' ($, ' .' ")&' #'" '1$'!&' #8' ")&' +) '.' &$+#'' 8#,' *) !)' +1!)' 8&,"8 !$"&' %$?')$4&' @&&'' .,$'"&(' ' $'(' 2,&N 4 #1+-?' "#' #@"$ ' ' .' $' -&$,$'!&' $" "@&' '(' #8' +1!)' &$+#'' 8#,' $'?' #")&,' <#?$.&' $" $'?' #8' +1!)' 5#,"+6' ")&' $+"&,' #8' +1!)') 2' +)$--' (&- 4&,' 12' ")&' @&8#,&B%&'" #'&(' &,"8 !$"&' "#' ")&' 2, '! 2$-' 88 !&,' #8' ")&' 1+"#%+' #8' +1!)' 5#,"] 5,#4 (&(' $-*$?+6' ")$" '' !$+&' $'?' +1!)') 2' +)$--')$4&' #'' @#$,(6' (1, ' .' ")&' %&' ")&' +$%&' %$?' @&' &' .$.&(' '' ")&' +$ (' +)&,?6' $'?' H##(+' #,' &,!)$'(L&+' *)$"+#&4&,' #")&,' ")$'' +)6' &$-+6' -' %$(&' #8' +)' #,' &$-+6' $-"6' 5,#4 + #'+6' $'(' #")&,') '.+6' @& '.' ")&' 5,#(1!&' #8' #,' 1+1$--?' &%2-#?&(' '' ")&' +$ (' +)&,?6' +1!)') 2' +)$--' 8#,8&'' ")&' +$ (' +) '.' &,"8 !$"&6' $'(' +)$--' ")&'!&8#,")' @&!#%&' $'(' @&' +1@>&!" $'(' -$@-&' "#' $--' +1!)' $'(' ")&' +$%&' 1-&+6' &+", !"#'+6' $'(' &.1-$"#'+' $+') 2+' '' .&'&,$-' $,&' +1@>&!" #,' -$@-&' "#

#3/6 .
GE 3 ' OD
72GD# / I#^
72GD#

' '(' @&' " 81,")&,' &'$!"&(')$" '#' H##(+' +)$--' @&' -$(&'6' #,' *$"&,B@#,'&' "#' @&' -$(&'6' #'' @#$,(' $'?') 26' ,' 1'-$(&'' 8,#%' $'?') 26' %' $'?' #8' ")&' (,' 5#++&++ #'+' '' * ' ' ")&' +-$'(+' #8' '& ' '#,' +' 1'"-' (1&' '",?' +)$--')$4&' @&&'' %$(&' #8' +1!)' H##(+6' $'(' E$,,$'' .,$'"&(' 8#,' ")&' -$('.' #,' 1'-$('.'

=D4 I723 #E
#Z2/GE 2#G
' I3Z2/GE

#8' ")&' +$%&' $'(' ")$" '#' H##(+' +)$--' @&' +#' -$(&'' #,' *$"&,B@#,'&6' #,' +#' 1'-$(&'6' &9!&2" $" +#%&' 5-$!&' $" *) !)' $" 88 !&8' #8' ")&' 1+"#%+' +' $22# '"&(' "#' $"'&'(' ")&' -$('.' $'(' 1'-$('.' #8' H##(+6' #,' $" +#%&' 5-$!&' 8#,' *) !)' $' 188,$'!&' +)$--' @&' .,$'"&(' @?' ")&' #--&!"#,' $'(' #'",#--&,' 8#,' ")&' -$('.' $'(' 1'-$('.' #8' +1!)' H##(+' $'(' ")$" '#' H##(+' +)$--' @&' +#' -$(&'' #,' 1'-$(&'' &9!&2" '' ")&' 5,&+&'!&' #,' *") ")&' 5&,% ++ #'' '' E, ''.' #8' ")&' 2,#2&,' 88 !&,' 5,#4 (&(' $-*$?+6' ")$" '' +)$--' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' 1+"#%+B' "#' %$:&' $'(' $22# '' +1!)' #")&,' &.1-$" #'+' 8#,' ")&' !$,,? '.' #$+"N * +&' #8' $'?' H##(+6' #,' 8#,' ")&' ,&%#4 '.' #8' $'?' H##(+' 8#,') 2%&'"6' $+' "#' ")&%' +)$--' $22&$,6' &92&(&'' $'(' ")$" $--' H##(+' -$(&'6' *$"&,N @#,'&6' #,' 1'-$(&'' !#'",$,?' "#' ")&' &.1-$"#'+' 8#,' ")&' !"6' #,' !#'",$,?' "#' $'?' &.1-$"#'+' +#' %$(&' $'(' $22# '"&(6' +)$--' @&' 8#,8&'"&(

=D4 I723 #E
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A /.D 3 I /D

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' I3Z2/GE

' '(' @&' " 81,")&,' &'$!"&(6')$" ")&' 5&,+#'' &'"&, '.' $'?' +1!)' H##(+' +)$--' (&- 4&,' "#' ")&' #--&!"#,' #,' #'",#--&,6' #,' #")&,' 2,#2&,' 88 !&,6' $' -' #8' ")&' '",?' ")&,&#86' 8$,-?' *$"'&'' '' E#,(+' $" &'.")6' !#'"$ ' '.' ")&' $%&' #8' ")&' 92#,"&,' #,' %2#,"&,6' $'(' #8' ")&') 26' $'(' #8' ")&' $+"&,6' $'(' #8' ")&' 5-$!&' "#' #,' 8,#%' *) !)' @#1'(6' $'(' #8' ")&' 5-$!&' * ") '' ")&' 5#," *)&,&' ")&' H##(+' $,&' "#' @&' -$(&'' #,' 1'-$(&'6' $'(' ")&' 5$," !1-$,+' #8' ")&' T1$-"?' $'(' T1$'"?' #8' ")&' H##(+6' $'(' ")&' 5$!:$.&+' !#'"$ ' '.' ")&' +$%&6' $'(' ")&' $,:+' $'(' 1%@&,+' #'' ")&' 5$!:$.&+6' $'(' +&"' '.' 8#,")' *)&")&,' +1!)' H##(+')&' ")&' 5,#(1!&' #8' ")&' (' 5#++&++ #'+' '' * '#,' '#"' $'(' +1!)' 5&,+#'' +)$--' $" ")&' +$%&' %&' 2$?' (#*'' $--' 31"&+' (1&' 12#'' ")&' H##(+' $'(' ")&' #--&!"#,' $'(' #'",#--&,6' #,' #")&,' 2,#2&,' 88 !&,6' +)$--' ")&,&12#'' .,$'" ")&' E$,,$'' 8#,' ")&' -$('.' #,' 1'-$('.' #8' +1!)' H##(+6

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K8

' '(' @&' " 81,")&,' &'$!"&(6')$" 8' ")&' %2#,"&,' #8' $'?' H##(+' +)$--' %$:&' $'(' +1@+!, @&' $' 3&!-$,$" #'' @&8#,&' "@&' #--&!"#,' #,' #'",#--&,66

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#'",#--&,6 #,' #")&,' 2,#2&,' 88 !&,6 ")$")&' !$''#"6 8#,' E$'"#8' 81--' '8#,%$" #'6 %$:&' 2&,8&!" '",?' ")&,&#86 " +)$--' @&' -$*8 V 8#,' ")&' #--&!"#,' $'(' #'",#--&,' "#' ,&!& 4&' $'' '",?' @?' --' #8' .)" 8#,' ")&' 5$!:$.&+' #,' 5$,!&-+' #8' +1!)' H##(+' @?' ")&' @&+" 3&+!, 2" #'' *) !)' !$'' @&' . 4&'6 $'(' "#' .,$'" $' E$,,$'" ")&,&12#'6 '' #,(&,' ")$" ")&' +$%&' %$?' @&' -$'(&(' $'(' +&!1,&(' "#' ")&' $" +8$!" #'' j8' ")&' 88 !&,' #8' ")&' 1+"#%+6 $'(' $'" ")&' 92&'!&' #8' ")&' %2#,"&,6 $'(' %$?' @&' +&&'' $'(' &9$% '&(' @?' +1!)' %2#,"&,' '' ")&' 5,&+&'!&' #8' ")&' 2,#2&,' 88 !&,+' ' $'(' * "-i ''),&&' 3$?+' $8"&,' ")&' H##(+' +)$--')$4&' @&&'' +#' -$'(&(' ")&' %2#,"&,' +)$--' %$:&' $' 2&,8&!" '",?' ")&,&#86 $'(' 2$?' (#*'' $--' 31" &+' (1&' ")&,&#'' ' $'(' '' (&8$1-" #8' +1!)' '",?' +1!)' H##(+' +)$--' @&' "$:&'' "#' ")&' D '.;+' E$,&)#1+&6 $'(' 8' ")&' %2#,"&,' +)$--' '#"6 * ") '' '&' #'")' $8"&,' +1!)' -$'('.6 %$:&' 2&,8&!" '",?' #8' +1!)' H##(+6 $'(' 2$?' ")&' 31" &+' (1&' ")&,&#'6 "#.&")&,' * ")')$,.&+' #8' &%#4$-' $'(' E$,&)#1+&' &'"6 +1!)' H##(+' +)$--' @&' +#-(' 8#,' ")&' 5$?%&'" ")&,&#86 $'(' ")&' 4&,2-1+6 8' $'?6 +)$--' @&' 2$ (' "#' ")&' 5,#2,&"#,' #8' ")&' H##(+

@ 3" #' "/DD'
*26E' 2.3D/'
72#G #4' .'
GE!' CD/^
.DH3' #3/6'
3 ' OD' O2GD'
2#G' * I3 DE'
C2 G

' '(' @&' " 81,")&,' &'$!"&(')$" '' $--' $+&+' *)&,&' ")&' 31" &+' %2#+&(' @?' ") +' !" 12#'' ")&' %2#,"$" #'' #8' ," !-&+' '"#' +' $>&+"?;+' 5#++&++ #'+' '' * '$,&' !)$,.&(6 '#" $!!#,('.' "#' ")&' E& .)"6 $-&6 H$1.&6 #,' &$+1,&6 @1" $!!#,('.' "#' ")&' <$-1&' ")&,&#86 +1!)' <$-1&' +)$--' @&' $+!&,"$ '&(' @?' ")&' 3&!-$,$" #'' #8' ")&' %2#,"&,' #8' +1!)' ," !-&+6 #,')+' :'#*'' .&'"6 '' $''&,' $'(' #,%' 8#--#* '.' X")$" +' "#' +$?6[

GE' EIO '

GDH72/DG' #
#3/6!'

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S QH#

E) !)' 3&!-$,$" #'' +)$--' @&' *,""&'' #'' ")&' --' #8' '",?' #8' +1!) ," !-&+6 $'(' +)$--' @&' +1@+!, @&(' * ")' ")&' $'(' #8' ")&' %2#,"&, ")&,&#86 #,') +' :'#*'' .&'"6 '' ")&' 5,&+&'!&' #8' ")&' #--&!"#,' #, #")&,' 2, '! 2$-' 88 !&,' #8' ")&' 1+"#%+' $" ")&' 5#," #8' %2#,"$" #'' 2,#4 (&(' ")$" 8' 12#'' < &*' $'(' 9$% '$" #'' #8' +1!)' ," !-&+' @?' ")&' 2,#2&,' 88 !&,' #8' ")&' 1+"#%+' " +)$--' $22&$,' "#') %' ")$" ")&' +$ (," !-&+' $,&' '#" 4$-1&(' $!!#,('.' "#' ")&' ",1&' 5, !&' #,' <$-1&' ")&,&#86 $'(' $!!#,('.' "#' ")&' ",1&' '"&'" $'(' &$' '.' #8' ")' +' !"6 ")&'' $'('' +1!)' $+&' ")&' %2#,"&,' #,') +' :'#*'' .&'' +)$--' @&' ,&C1 ,&(' "# (&!-$,&' #'' $")' @&8#,&' ")&' #--&!"#,' #,' #'",#--&,' *)$" +' ")&' '4# !& 5, !&' #8' +1!)' ," !-&+6 $'(' ")$")&' 4&, -?' @&- &4&+' +1!)' '4# !&' 5, !& +' ")&' !1,,&'" <$-1&' #8' ")&' ," !-&+' $" ")&' 5-$!&' 8,#%' *)&'!&' ")& +$ (' ," !-&+' *&,&' %2#,"&(' $'(' +1!)' '4# !&' 5, !&6 * ")' ")&' (("#'' #8' &'' 5#1'(+' *' ")&,&#'6 +)$--' @&' (&&%&(' "#' @& ")&' <$-1&' #8' ")&' ," !-&+6 '' - &1' #8' ")&' <$-1&' +#' (&!-$,&(' @?' ")& %2#,"&,' #,') +' :'#*'' .&'6 $'(' 12#'' *) !)' ")&' 31" &+' %2#+&(' @? ") +' !" +)$--' @&' !)$,.&(' $'(' 2$ ('] 5,#4 (&(' $-+#6 ")$" 8' " +)$-- $22&$,' "#' ")&' #--&!"#,' $'(' #'",#--&,6 #,' #")&,' 2,#2&,' 88 !&,6 ")$" +1!)' ," !-&+')$4&' @&&'' '4# !&(' &-#*' ")&' ,&$-' $'(' ",1&' <$-1& ")&,&#86

B GD' .
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.'#DHDEE2/6'
Z '+D/E #E
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.&'3"D'+/ HD!'

")&,&#8'6 $"'")&' 5-$!&' 8,#%' *)&'!&' ")&' +$%&' *&,&' %2#,"&(6' #,' 8'")7' '4# !&' 5, !&' +' '#"' :'#*'6' ")&' ," !-&+' +)$--' '' +V!)' $+&' @&' &9$% '&(' @?' *# !#%2&"&''"5&,+#'+6' "#' @&' '#% '$"&(' $'(' $22# '"&(' H#4&,'#,' #,' #%%$'(&,B 'B) &8' #8' ")&' #-2 ?6' 5-$'"$" #'6 +-$'(' '"# *) !)' ")&' +$ (' ," !-&+' $,&' %2#,"&(6' $'(' +1!)' 5&,+#'+' +)$--' (&!-$,&' #'' $")' @&8#,&' ")&' #--&!"#,' #,' #'",#--&,6' #,' #")&,' 2,#2&,' 88 !&,6' *)$"' +' ")&' ",1&' $'(' ,&$-' <$-1&' #8' +1!)' ," !-&+' '' +1!)' #-#'?6' 5-$'"$" #'6' #,' +-$'(' ' $'(' ")&' <$-1&' +# (&!-$,&(' #'' ")&' $")+' #8' +1!)' 5&,+#'+' +)$--' @&' (&&%&(' "#' @&' ")&' ",1&' $'(' ,&$-' <$-1&' #8' +1!)' ," !-&+6' $'(' 12#'' *) !)' ")&' 31" &+' %2#+&(' @?' ") +' !'' +)$--' @&' !)$,.&(' $'(' 2$ (

.' OC /3D/'
/D.IED' 3 ' C26'
EIH"' * I36!'
3"D' GE'
O26' OD' E 7G

< ' '(' @&' '' 81,")&,' &'$!"&(')$"' 8'")&' %2#,"&,' #8' +1!)' ," !-&+' +)$--' ,&81+&' "#' 2$?' ")&' 31" &+')&,&@?' %2#+&(' ")&,&#'6' %$?@&' -$*81-' 8#,' ")&' #--&!"#,' #,' #")&,' !) &8' 88 !&,' #8 ")&' 1+"#%#+' *)&,&' +1!)' ," !-&+' +)$--' @&' %2#,"&(6' $8"(' @&' +')&,&@?' ,&+2&!" 4&-?' ,&C1 ,&(6' "#' "$:&' $'(' +&!1,&' ")&' +$%&6' * ")' ")&' $+:+' #,' #")&,' 5$!:$.&' ")&,&#8' $'(' "#' !$1+&' ")&' +$%&' "#' @&' 21@- !-?' +#-(' * ")' '' ")&' 2$!&' #8' *&'"?' 3$>7' $"' ")&6' %(+'' $8"&,' +1!)' &81+$-' %$(&6' $'(' $"' +1!)' %&' $'(' 5-$!&' $+' +1!)' 88 !&,' +)$--6' @?' #1,' #,' %#,&' 3$?+' 21@- !' #" !&6' $22# '' 8#,' ")$"' 51,2#+&' *) !)' ," !-&+' +)$--' @&' +#-(' "#' ")&' @&+' ((&,' $'(' ")&' #'&?' $, +'.' 8,#%' ")&' $-&' ")&,&#8' +)$--' @&' $22- &(' '' ")&' 8 ,+' 2-$!&' '' 5$?%&''' #8' ")&' +$ (' 31" &+6' "#.&")&,' * ")' ")&')$,.&+' ")$"' +)$--')$4&' @&&''#!!$+ #'&(' @?' ")&' +$ (' $-&6' $'(' ")&' 4&,2-1+6' 8'$'?6' +)$--' @&' 2$ (' "#' +1!)' %2#,"&,' #,' 5,#2, &"#,6' #,' $'?' #")&,' 5&,+#'' $1")#, L&(' "#' ,&!& 4&' ")&' +$%&6

.' GE' OD'
3' D#3D/DG'
#' ZD#36'
*26E!' 3"D'
'..HD/' O26'
72#G' 2#G' ED^
HI/D' 3"DO
.'* I3 DE' OD'
3' C2G'
Z 3" #' "/DD'
B #3"E!'
GE' 3 ' OD'
E 7G

< ' '(' @&' '' 81,")&,' &'$!"&(')$"' &4&,?' %2#,"&,' #8' $'?' H##(+' +)$--6' * ") '' *&'"?' 3$?+' $8"&,' ")&' ,, 4$-' #8' ")&' %2#," '.') 26' %$:&' (1&' '",?' '*$,(+' #8' +1!)' H##(+6' $'(' -$'(' ")&' +$%&' >' $'(' '' (&8$1-'' #8' +1!)' '",?' $'(' $'(' '.' '' +)$--' @&' -$*81-' 8#,' ")&' 88 !&,+' #8' ")&' 1+"#%+' "#' !#'4&?' 1!)' H##(+' "#' ")&' D '.;+' E$,&N)#1+&' $'(' 8'")&' 31" &+' (1&' 12#'' +1)' H##(+' &'#' 2$ (' *(")''),&&' #'")+' $8"&,' +1!)' *&'"?' 3$?+' +)$--')$4&' &92 ,&(6' "#.&")&,' 4F")' $-')$,.&+' #8' &%#4$-' $'(' E$,&)#1+&' &'"6' ")&' +$%&' +)$--' @&' +#-(6' $'(' ")&' 5,#(1!&' ")&,&#8' +)$--' @&' $22- &(' 8 ,+' "#' ")&' 5$?%&'' #8' ,&.)' $'(')$,.&+6' '&9' #8' 31" &+6' $'(' ")&' 4&,2-1+6' 8'$'?6' +)$--' @&' 2$ (' "#' ")&' 5,#2, &"#,' ")&' H##(+

GE' O^
C /3DG'./ O'
3DG' ? #4^
G O' /' /^
3 E"' + EEDE^
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< ' '(' @&' '' 81,")&,' &'$!"&(')$"' '#' H##(+' +)$--' @&' %N 2#,"&(' '"#' $'?' (' 5#++&++ #'' $+' @&' '.' %2#,"&(' 8,#%' ")&' V' "&(' D '.(#%6' #,' 8,#%' $'?' #")&,' (' 5#++&++ #'' X 8' $'?' (4$'"$.&' $"'$!)' "#' +1!)' 3 +" '!" #'[6' 1'-&++' +1!)' H##(+' $22&$,' 12#'' ")&' #!:&"+' #,' #")&,' 2,#2&,' 3#!1%&'"+' 8#,' ")&' +$%&' "#' '$4&' @&&'' (1-?' !-&$,&(' 1"*$,(+' $'' ")&' 5#,'' #8' 92#,"$" #'' '' ")&' V' "&(' D T.(#%6' #,' '' +1!)' #")&,' (' 5#++&++ #'6' '#,' 1'-&++' ")&' H,#1'(' 12#'' *) !)' +1!)' (4$'"$.&' @&' !-$ %&(' @&' +"$"&(' '' +1!)' #!:&"' #,' 3#!1%&''

7#,"&(' 8,#''
3 ' OD' GDDODG'
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< ' '(' @&' '' 81,")&,' &'$!"&(')$"' '#' H##(+' +)$--6' 12#'' %2#,"$" #'' '"#' $'?' #8' ")&' (' 5#++&++ #'+' '' * ' @&' (&&%&(' "#' @&' #8' ")&' H,#*")' 5,#(1!" #'6' #,' $'18$!"1,&' #8' ")&' V' "&(' D '.B' (#%6' #,' #8' $'?' (' 5#++&++ #'' '' * ' 1'-&++' %2#,"&(' 8,#%' V' "&(' D '.(#%6' #,' 8,#%' +#%&' (' 5#++&++ #'' '' *

' ' $ B ' ' (2C G

< % ' '(@& "' 81,")&,' &'$!"&(6)$"' '# '",? '#,' $'? #3/6' # 3' 3 '
E$,,$'" 8#,' ")&' -$'('.' #8 $'? H##(+6 #,' 8#,' ")&' "$: '.' #8 $'? OD' F27 G' .'
H##(+' #1" #8 $'? E$,&)#1+&6 +)$--' @&' (&&%&(' 4$- (' 1'-&++' ")&' 5$," B' 2,#2&,-?7(&B7
!1-$,+' #8")&' H##(+' $'(' 5$!:$.&+' "+1!)' '",?'+)$--' !#,,&+2#'(' * ")' +!, @&(' % "'
")&' 5$," !1-$,+' #8")&' H##(+' $'(' 5$!:$.&+' 21,2#," '.' "#' @&' ")&'
+$%&' "")&' &2#,"#8")&') 26 #,' "")&' &," 8 !$"&' #,' #")&,' 3#!1N
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+1!)' H##(+' +' $1")#, L&(6 '#,' 1'-&++' ")&' H##(+' +)$--')$4&' @&&'' 2,#N
2&,-?' (&+!, @&(' ' +1!)' '",?' @?' ")&' 3&'#% '$" #'+' $'(' * ")' ")&'
)$,$!"&,+' $'(' ,!1%+"$'!&+' $!!#,('.' "#' *) !)' +1!)' H##(+' $,&'
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(&- 4&,&(' #1" #8 $'?') 2' #,' #1" #8 $'?' E$,&)#1+&' @?' 4 ,"1&' #8 $'?'
'",?' #,' E$,,$'" '#" !#,,&+2#'('.' #,' $.,&& '.' "$--' +1!)' &+2&!"+6
#,' '#" 2,#2&,-?' (&+!, @ '.' ")&' +$%&6 +)$--' @&' (&&%&(' "#' @&' H##(+'
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' '(' @&' "' 81,")&,' &'$!"&(')$"' @&8#,&' $'?' 1.$,6 #88&&6D/3 . H23D' .'
#!#$6 #,' 2 , "+' +)$--' @&' +) 22&(' 8#,' 92#,"$" #'' '' $'?' (' +/ G I H3 #'
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5,#(1!&' #8 +1!)' 5#++&++ #'' #,' #8 +1!)' +-$'(6 ")&' 5,#2, &"#,' #8 ")&' (..DD!(H 2!'
+"$"&' #'' *) !)' +1!)' H##(+' *&,&' 2,#(1!&(6 #,') +' :'#*'' .&'"6 /' C / 3E
+)$--' %$:&' $'(' + . '' $'' 88 ($4 '' '' E , " '.' @&8#,&' ")&' #--&!"#,' #,' '23"' .'3"D'
#'",#--&,' $"' ")&' 5#,' #8 92#,"$" #'6 #,' @&8#,&' '&' #8 +' $>&+"?;+' / ZD/
R1+" !&+' #8 ")&' 5&$!&6 #,' #")&,' 88 !&,' (1-?' $1")#, L&(' "#' $(% ' +"&,'
+1!)' $")6 ,&+ ('.' '' #,' '&$,' ")&' 5-$!&' *)&,&' +1!)' +"$"&' +' + "1$"&(6
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")&' 5&,+#'' "#' *)#+&')$,.&' $"' ")&' 5-$!&' #8) 2%&'' ")&?' $,&' "#' @&
+&'"' $'(' 8 $'?' R1+" !&' #8 ")&' 5&$!&' #,' #")&,' 88 !&,' $8#,&+$ (' +)$--'
+1@+!, @&') +' $%&' "#' $'?' E , " '.' 21,2#," '.' "#' @&' +1!)' 88 ($4 "6
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2&$,' @&8#,&') %' $'(' @&' +*#,'' "#' ")&' ,1")' #8 ")&' +$%&6 +1!)' R1+" !&'
#8 ")&' 5&$!&' #,' 88 !&,' $8#,&+$ (' +)$--' 8#,8& '' $'(' 2$?' 8#,' $'?' +1!)'
88&'!&' ")&' 1%' #8 8"?' 5#1'(+' ' $'(' ")&' 5&,+#'' &'"&,' '.' $'(' +) 2N *DH72/23 #'
2 '.' +1!)' H##(+' +)$--' (&- 4&,' +1!)' 88 ($4 '' "#' ")&' #--&!"#,' #,' #'N .' &C /3D/
",#--&,' #,' #")&,' 2,#2&,' 88 !&,6 $'(' +)$--' %$:&' $'(' +1@+!, @&' $' 3&!-$N
,$" #'' @&8#,&') %' ")$"' ")&' H##(+' *) !)' $,&' "#' @&' +) 22&(' @?' 4 ,"1&'
#8 +1!)' '",?' $,&' ")&B+$%&' $+' $,&' %&'" #'&(' '' +1!)' 88 ($4 " ' $'(' *DH72/23 #'
")&' $+"&,' #8 ")&') 2' '' *) !)' +1!)' H##(+' +)$--' @&' -$(&'' +)$--6 .'3"D IE3D/
@&8#,&' -&$,$'!&6 %$:&' $'(' +1@+!, @&' $' 3&!-$,$" #'' @&8#,&' ")&' #-N
-&!"#,' #,' #'",#--&,' ")$"' ")&' H##(+' +) 22&(' @?' 4 ,"1&' #8 +1!)' '",?'
$,&' ")&' +$%&' $+' $,&' %&'" #'&(' $'(' '"&'(&(' '' +1!)' 88 ($4 "6 "#' ")&'
@&+" #8) +' D'#*-&(.&' $'(' &- &8 ' $'(' ")&,&12#'' ")&' #--&!"#,' $'('
#'",#--&,6 #,' #")&,' 2,#2&,' 88 !&,6 +)$--' + . '' $'(' . 4&' "#' ")&' $+"&,'
$' &," 8 !$"&' #8 5,#(1!" #'6 +"$" '.' ")$"' 5,##8)$+' @&&'' %$(&6 ''
%$''&,' ,&C1 ,&(' @?' $*6 ")$"' +1!)' H##(+' X(&+!, @ '.' ")&' +$%&[' $,&
")&' 5,#(1!&' #8 +1!)' (5#++&++ #'' #,' #8 +1!)' +-$'(6 $'(' +&"" '.'
8#,")' '' +1!)' &," 8 !$"&' ")&' $%&' #8 ")&' 92#,"&,' $'(' #8 ")&' &9N
2#," '.') 26 $'(' #8 ")&' $+"&,' ")&,&#86 $'(' ")&' 3&+" '$" #'' #8 ")&'
H##(+' $'(' 8 $'?' 1.$,6 #88&&6 #!#$6 #,' 2 , "+' @&' %2#,"&(' '"#'
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I' D' #")&,

#")&,ʿ + !)ʿ 5#++&++ #"ʿ #A #8ʿ +1!)ʿ +-$'(Aʿ E ")#1"ʿ +1&)ʿ &," 8 !$"&ʿ #8ʿ 5,#(1!" #'6ʿ ")&ʿ +$%&ʿ +)$--ʿ @&ʿ 8#,8& "&(A

(D/3 . H23Dʿ .ʿ +/ GIH3 #ʿ #ʿ =D D&C /^ 323 #ʿ ./ 0ʿ 2# 3"D/ʿ (7 #6

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(6ʿ)$"ʿ @&8#,&ʿ $'?ʿ 1.$,6ʿ #88&&6Bʿ #!#$6ʿ #,ʿ 2 ,"+ʿ +)$--ʿ @&ʿ +) 22&(ʿ 8#,ʿ 92#,"$" #'ʿ 'ʿ $'?6ʿ (ʿ 5#++&++ #'ʿ 'ʿ * ʿ $+ʿ @& '.ʿ ")&ʿ 5,#(1!&ʿ #8ʿ +#%&ʿ #")&,ʿ +1!)ʿ 5#+N +&++ #'6ʿ ")&ʿ 5&,+#'ʿ &92#," '.ʿ ")&ʿ +$%&ʿ +)$--ʿ '6")&ʿ '",?ʿ 1"*$,(+ʿ +"$"&ʿ ")&ʿ 5-$!&ʿ #8ʿ ")&ʿ 5,#(1!" #'6ʿ $'(ʿ ,&8&,ʿ "#ʿ ")&ʿ '",?ʿ '*$,(+ʿ $'(ʿ -$'(ʿ '.ʿ #8ʿ +1!)ʿ H##(+6ʿ $'(ʿ +)$--ʿ '>$:&ʿ $'(ʿ +1@+!, @&ʿ $ʿ 3&!-$,$" #'ʿ @&8#,&ʿ ")&ʿ #--&!"#,ʿ #,ʿ #'",#--&,ʿ "#ʿ ")&ʿ (&'"?#8ʿ ")&ʿ +$%&ʿ $'(ʿ ")&,&12#'6ʿ 8ʿ +1!)ʿ H##(+ʿ +)$--ʿ)$4&ʿ @& V (1-?ʿ %2#,"&(ʿ * ")ʿ $ʿ &," N 8 !$"&ʿ #8ʿ 5,#(1!" #'ʿ * ") 'ʿ *&-4&ʿ #'")+ʿ 2, #,ʿ "#ʿ ")&ʿ +) 22 '.ʿ 8#,ʿ 92#,"$" #'6ʿ ")&ʿ #--&!"#,ʿ $'(ʿ #'",#--&,ʿ +)$--ʿ + . 'ʿ $'(ʿ . 4&ʿ "#ʿ ")&ʿ $+"&,ʿ $ʿ &," 8 !$"&ʿ #8ʿ 5,#(1!" #'ʿ 8#1'(&(ʿ 12#'ʿ $'(ʿ ,&8&,, '.ʿ "#ʿ ")&ʿ &," 8 !$"&ʿ #8ʿ 5,#(1!" #'ʿ 1'(&,ʿ *) !)ʿ 1!)ʿ =H##(+ʿ)$(ʿ @&&'ʿ +#ʿ %2#,"&(6ʿ $'(ʿ !#'"$ ' '.ʿ ")&ʿ - :&ʿ $," !1-$;+6ʿ "#.&")&,ʿ * ")ʿ ")&ʿ 3$"&ʿ #8ʿ +1!)ʿ %2#,"$" #'

GE O/ I4"3ʿ FD/ʿ 2#G!ʿ /ʿ O6ʿ #72#Gʿ)2F ^ 423 #

Aʿ '(ʿ *)&,&$+ʿ "ʿ +ʿ &92&(&'"ʿ "#ʿ %$:&ʿ &.1-$" #'ʿ ,&+2&!" '.ʿ ")&ʿ '-$'(ʿ ,$(&ʿ #8ʿ ")&ʿ (ʿ 5#++&++ #'+ʿ 'ʿ * ʿ ʿ @&ʿ "ʿ ")&,&N 8#,&ʿ &'$!"&(6ʿ)$"ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ "#ʿ @, '.ʿ #,ʿ %2#,"ʿ @?ʿ $'(ʿ #,ʿ @?ʿ '-$'(ʿ $4 .$" #'ʿ '"#ʿ $'?#8ʿ (ʿ 5#++&++ #'+ʿ 'ʿ * ʿ 8,#%ʿ $'?ʿ $(>#' '.ʿ #,& .'ʿ #1'",?ʿ $'?ʿ H##(+ʿ *) !)ʿ % .)"ʿ @&ʿ -$*N 81--?ʿ %2#,"&(ʿ @?ʿ &$ʿ '"#ʿ +1C)ʿ 5#++&++ #'ʿ 8,2%ʿ 1!)ʿ #1'",?6ʿ $'(ʿ +#ʿ "#ʿ @, '.ʿ #,ʿ %2#,"ʿ +1!)ʿ H##(+ʿ 'ʿ ")&ʿ <&++&-+6ʿ #$"+6ʿ #,ʿ $,, $.&+ʿ #8ʿ +1!)ʿ #1'",?6ʿ $+ʿ *&--ʿ $+ʿ 'ʿ (ʿ <&++&-+6ʿ #$"+6ʿ #,ʿ $,, $.&+

@"23ʿ DEEDʿ7Eʿ E"27ʿ ODʿ GDDODGʿ /^ 3 E"ʿ #ʿ 3"Dʿ 2]DEʿ # OD/ H2

6ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ '#ʿ <&++&-ʿ #,ʿ #$"ʿ +)$--ʿ @&ʿ $(% '"&(ʿ "#ʿ @&ʿ $ʿ (ʿ <&++&-ʿ #,ʿ #$"ʿ #'ʿ $'?ʿ #8ʿ ")&ʿ '-$'(ʿ E$"&,+ʿ #,ʿ $:&+ʿ 'ʿ * ʿ &9!&2"ʿ +1!)ʿ $+ʿ +)$--ʿ)$4&ʿ @&&'ʿ @1 -"ʿ $"ʿ +#%&ʿ 5-$!&ʿ * ") 'ʿ ")&ʿ (ʿ 3#% '#'+6ʿ $'(ʿ +)$--6ʿ @&ʿ E)#--?ʿ #*'&(ʿ @?ʿ (ʿ 1@>&!"+6ʿ $'(ʿ +)$--6ʿ '#"ʿ)$4&ʿ @&&'ʿ ,&2$,&(ʿ $"ʿ $'?ʿ #,& .'ʿ 2-$!&ʿ "#ʿ $.,&$"&,ʿ 9"&'"ʿ ")$'ʿ 'ʿ ")&ʿ 5,#2#,"#'ʿ #8ʿ &'ʿ) -- '.+ʿ 8#,ʿ &4&,?ʿ 5 ʿ #8ʿ +1!)ʿ <&++&-ʿ #,ʿ #$"ʿ $"ʿ $V?ʿ '&ʿ %&ʿ] 5,#4 (&(ʿ $-*$?+6ʿ ")$"ʿ '#") '.ʿ)&,& 'B@&8@,&6ʿ !#'"$ '&(6ʿ +)$--ʿ &9"&'(ʿ "#ʿ 2,&4&'"ʿ ")&ʿ %2-#?%&'"ʿ #8ʿ $'?ʿ <&++&-ʿ / #$"ʿ $+ʿ $ʿ (ʿ <&++&-ʿ #,ʿ #$"ʿ #'ʿ +1!)ʿ '-$'(ʿ E$"&,+ʿ #,ʿ $:&+ʿ *) !)ʿ +)$--ʿ)$4&ʿ *)#--?ʿ @&-#'.&(ʿ "#ʿ (ʿ 1@>&!"+ʿ @&8#,&ʿ ")&ʿ 8")ʿ 3$?ʿ #8ʿ & ʿ '&ʿ ")#1+$'(ʿ & .)"ʿ)1'(,&(ʿ $'(ʿ "*&'"?B8 4&6ʿ $'(ʿ *) !)ʿ +)$--ʿ '#"ʿ)$4&ʿ @&&'ʿ + '!&ʿ ")$"ʿ 3$?ʿ ,&2$,&(ʿ $+ʿ $8#,&+$ (ʿ 'ʿ $'?ʿ #,& .'ʿ 5-$!&

GEʿ O IE3ʿ ODʿ O/ I4"3ʿ 3 ʿ 2ʿ +72HDʿ Z"D/Dʿ 3"D/Dʿ Eʿ 2ʿ (IE3 Oʿ > IED FD/# /ʿ O26ʿ 2CC #3ʿ (IE3 Oʿ > IEDE

ʿ 5,#4 (&(ʿ $-*$?+Aʿ $'(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ "ʿ +)$--ʿ '#"ʿ @&ʿ -$*81-ʿ +#ʿ "#ʿ @, '.ʿ #,ʿ %2#,"ʿ $'?ʿ H##(+ʿ &9!&2"ʿ '"#ʿ +#%&ʿ 5#,"ʿ #,ʿ 5-$!&ʿ #8ʿ '",?ʿ $"ʿ *) !)ʿ $ʿ 1+"#%ʿ #1+&ʿ '#*ʿ +ʿ #,ʿ)&,&$8"&,ʿ %$?ʿ @&ʿ -$*81--?ʿ &+"$@- +)&(ʿ] 5,#4 (&(ʿ $-+#6ʿ ")$"ʿ "ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ H#4&,'#,6ʿ &1"&'$'"ʿ H#4&,'#,6ʿ #,ʿ 5&,+#'ʿ $(% ' +"&, '.ʿ ")&ʿ H#4&,'N %&'"ʿ #8ʿ $'?ʿ #8ʿ ")&ʿ +$(ʿ 5#++&++ #'+ʿ ,&+2&!" 4&-?6ʿ @?ʿ $'(ʿ * ")ʿ ")&ʿ (4 !&ʿ $'(ʿ #'+&'"ʿ #8ʿ ")&ʿ 9&!1" 4&ʿ #1'! -ʿ ")&,&#8ʿ 8#,ʿ ")&ʿ %&ʿ @& '.6ʿ 8ʿ $'?ʿ 9&!1" 4&ʿ #1'! -ʿ @&ʿ ")&,&ʿ &+"$@- +)&(6ʿ 8,#%ʿ %&ʿ "(ʿ %&ʿ "#ʿ (% ' +)ʿ #,ʿ '!,&$+&Aʿ @?ʿ 5,#!-$%$" #'6ʿ ")&ʿ 1%@&,ʿ #8ʿ 5#,"+6ʿ #,ʿ 5-$!&+ʿ #8ʿ '",?ʿ *) !)ʿ $,&ʿ #,ʿ %$?ʿ @&ʿ $22# '"&(6ʿ 'ʿ +1!)ʿ 5,#4 '!&ʿ 8#,ʿ ")&ʿ '",?ʿ #8ʿ H##(+6ʿ @,#1.)"ʿ #,ʿ %2#,"&(ʿ $+ʿ $8#,&+$ (

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< ' ' (' @& '' 81,")&,' &'$!"&(')$'' ")&' 31" &+' %2#+&(' @?' * I3 DE' "# @&
") +' !'' +)$--' @&' $+!&,"$ '&(6' -&4 &(6' $' (' ,&!#4&,&(' 8#,' $' (' 12#'' $--' H 77DH3DG' #'
H##(+' +#' @,#1.)'' #,' %2#,"&(' '' ")&' +$%&' $''&,6' $'(' @?' ")&' 7$%&
&$'+6' $'(' 1'(&,' ")&' +$%&' 1-&+6' &.1-$"#'+6' &+", !"#'+6' 5&'$-B' GE' O '
"&+6' $'(' #,8& "1,&+6' $+' ")&' 31" &+' #'' ")&' - :&' H##(+' %2#,"&(' @?' &$ C /3DG' O6'
%$?' $'(' !$'' @&' $+!&,"$ '&(6' -&4 &(6' #,' ,&!#4&,&(6' $+' 8$,' $+' ")&' +$%&' &$'
$,&' $22- !$@-&' ' $'(' 8' $'?' H##(+' +)$--' @&' @,#1.)'' #,' %2#,"&(' !#'N
",$,?')&,&"#6' #,' 8' $'?' H##(+' +#' @,#1.)'' #,' %2#,"&(' +)$--' @&' ,&%#4&('
8,#%' ")&' "$"#'' #,' 5-$!&' $22#' '"&(' 8#,' ")&' 9$% '$"#'' #8' +1!)'
H##(+' @?' ")&' 88 !&,+' #8' ")&' 1+"#%+' @&8#,&' $--' 31" &+' 2$?$@-&'
")&,&#'' +)$--')$4&' @&&'' 2$ ('#,' +$" +8 &(6' +1!)' H##(+' +)$--' @&' 8#,8& "&(6'
"#.&")&,' * ")' ")&' <&++&-6' #$"6' #,' $,, $.&6' $'(' ")&' #,+&+' #,' #")&,'
$""-&6' '' #7' @?' *) !)' +1!)' H##(+' +)$--')$4&' @&&'' +#' %2#,"&(' #,'
@,#1.)"6' #,' +#' ,&%#4&(

< ' '(' @&' '' 81,")&,' &'$!"&(6')$'' ")&' +$%&' #''$.&' * I3 DE' #'
31" &+' +)$--' @&' 2$ (' 12#'' $--' <&++&-+' #,' #$"+' #8' ")&' V' "&(' "$"&+' #8' (2#2G2' #'
* ' %2#," '.' $'?' H##(+' '"# & ")&,' #8' ")&' 5,#4 '!&+' #8' < '#,
$ ' ' $+' $,&' #,' %$?' @&' 8#,' ")&' - %&' @&' '.' 2$?$@-&' '' ")&' %&, !$#''
V' "&(' "$"&+' #' * '#'' ('<&++&-+' #,' #$"+' &'"&, '.'")&' $,B' / 3 E" 23E '
)#1,+' #8' ")&' "$"&' 8,#%' *)&' !&' +1!)' H##(+' +)$--')$4&' @&&'' %2#,"&(

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+#%&' #8' ")&' 8,&&' 5#,"+' $'(' #")&,' 5#,"+' '' * '"#' @&' 8,&&' *$,&B' OD#3 #DG'
)#1+ '.' 5#,"+' #,' "#' @&' *$,&)#1+ '.' 5#,"+' 8#,' $--' #,' $'?' #8' ")&' H##(+
*) !)' %$?' @&' -&.$--?' %2#,"&(' '"#' ")&' +$ (' 5#,"+' ,&+2&!" 4&-?' ' $'(' 2#,"+' '
'' +' $-+#' &92&(&''' "#' &%2#*&,' +' $>&+"?' "#' !#'+" "1"&' $'(' $22#' ''
8,#%' %&' "#' %&' $'?' #")&,' 5#,"+' '' $'?' #8' ")&' +$ (' ('5#++&+N
+#'+' '' * '"#' @&' '' - :&' $''&,' *$,&)#1+ '.' 5#,"+' 8#,' +1!)'
H##(+' $+' %$?' @&' -&.$--?' %2#,"&(' '"#' +1!)' 5#,"+' ,&+2&!" 4&-?' ' $'('
'' +' ")&,&8#,&' '&!&++$,?' "#' %$:&' &.1-$"#'+' 8#,' ")&' $22#' '" '.' #8'
2,#2&,' E$,&)#1+&+' $" +1!)' 5#,"+6' $'(' 8#,' ")&' -#(.' '.' $'(' +&!1, '.'
#8' H##(+' ")&,&' '' ' @&' '' ")&,&8#,&' &'$!"&(')$'' ")&' +&4&,$-' 5#,"+'
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+)$--' @&' 56++' F 6+2 . ?' 1 6 ' 8#,' $--' ")&' 51,2#+&+' #8' ") +B'
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GE O 26OD' Z2/D" IEDG' %&'"#8 31"4 <ʻ '(ʻ @&ʻ "81,")&,ʻ&'$!"&(6)$"" "+)$--ʻ@&ʻ -$*81-ʻ8#,ʻ ">.ʻ %2#,"&,ʻ#8ʻ $'?ʻ+1!)ʻ H##(+ʻ '"#ʻ")&ʻ+$ (B 5#,"+ʻ"#ʻ *$,&)#1+&ʻ")&ʻ E$,&)#1+&+ʻ +#ʻ$22# '"&(6 * ")#1"5$?%&'"#8ʻ$'?ʻ 31"? ;ʻ #'ʻ ")&ʻ 8 ,+"ʻ '",?ʻ")&,&#86 +1@>&!"ʻ '&4&,")&-&++ʻ "#ʻ ")&ʻ 1-&+6 &.1Bʻ $"#'+6 &+", !"#'+6 $'(ʻ #'("#'+ʻ)&,& 'B$8"&,ʻ!#'"$ '&(

=D41723 # 2E 3 ʻZ2/D^ " IE #4ʻ .ʻ GE # //F27 # (2#2G2 <ʻ '(ʻ @&ʻ "81,")&,ʻ &'$!"&(6)$" 122'ʻ")&ʻ ,, 4$-ʻ#8ʻ $'?ʻH##(+ʻ $" $'?8,#'"&,ʻ5#," 'ʻ")&ʻ ʻ+1!)ʻ H##(+ʻ%$?ʻ @&ʻ &'"&,&(6 *")ʻ ")&ʻ 2,#2&,ʻ 88 !&,ʻ#8ʻ")&ʻ 1+"#%+ʻ $" +1!)ʻ 5#,"6 "#ʻ @&ʻ *$,&)#1+&(ʻ $"ʻ +#%&ʻ *$,&)#1+ '.ʻ 5#," 'ʻ")&ʻ ʻ$'(ʻ %$?ʻ@&ʻ (&-4&,&(ʻ@?ʻ+1!)ʻ 88 !&,ʻ"#ʻ@&ʻ 2$++&(ʻ '"#ʻ+1!)ʻ *$,&)#1+ '.ʻ 5#,"6 1'(&,ʻ #'7ʻ"#ʻ")&ʻ $"+8$!"#'ʻ#8ʻ+1!)ʻ 88 !&,6 8#,ʻ")&ʻ (1&ʻ ,, 4$- $'(ʻ *$,&)#1+ '.ʻ#8ʻ+1!)ʻ H##(+ʻ$"ʻ+1!)ʻ 5#""

3 Z24D' .ʻ GE # @2/D" IED H] #4ʻ 2#G CD# #4 @2/D" IED (2//6 #4 GE 3 ʻ2#G ./ 0ʻ@2/Dʻ IED! ʻ '(ʻ@&ʻ "81,")&,ʻ&'$!"&(6)$"$--ʻH##(+ʻ+#ʻ *$,&)#1+&(ʻ +)$--ʻ@&ʻ +"#*&(ʻ 'ʻ+1!)ʻ 5$,"+ ;ʻ3 4+#'+ʻ#8ʻ")&ʻ E$,&)#1+&ʻ $'(ʻ 'ʻ +1!)ʻ $''&,ʻ$+ʻ")&ʻ #--&!"#,ʻ $'(ʻ #'",#--&,ʻ+)$--ʻ(,&!">ʻ$'(ʻ")$"ʻ ")&ʻ E$,&)#1+&ʻ+)$--ʻ@&ʻ-#!:&(ʻ$'(ʻ+&!1,&(ʻ 'ʻ+1!)ʻ $''&,6 $'(ʻ+)$--ʻ @&ʻ#2&'&(ʻ $'(ʻ 4+"&(ʻ #'-?ʻ$"ʻ+1!)ʻ %&+6 $'(ʻ 'ʻ")&ʻ 5,&+&'!&ʻ#8ʻ +1!)ʻ 88 !&,+6$'(1'(&,ʻ+1!)ʻ 1-&+ʻ$'(ʻ &.1-$"#'+6 $+ʻ")&ʻ #--&!"#,ʻ $'(ʻ #'",#--&,ʻ+)$--ʻ(,&!"ʻ $'(")$"$--ʻ+1!)ʻH##(+6 +)$--6$8"&,ʻ@&ʻ'.ʻ -$'(&(ʻ 12#'ʻ %2#,"$" #'6 @&ʻ!$,, &("#ʻ")&ʻ E$,&)#1+&6 #,ʻ+)$--6 $8"&,ʻ @&ʻ'.ʻ"$:&'#1"ʻ #8ʻ")&ʻ E$,&)#1+&ʻ8#,ʻ 92#,"$"#'6 @&ʻ !$,, &(ʻ"#ʻ@&ʻ +) 22&(6 1'(&,ʻ +1!)ʻ 1-&+ʻ $'(ʻ &.1-$"#'+ʻ $+ʻ ")&ʻ #--&!"#,ʻ $'(ʻ #'",#--&,ʻ+)$--ʻ(,&!"6

#G' IC # #3/6 .ʻ GE 3 ʻOD' Z2/D" IEDG ʻ '(ʻ@&ʻ "81,")&,ʻ&'$!"&(ʻ)$" 12#'ʻ")&ʻ '",?ʻ#8ʻ$'?ʻH##(+ʻ "#ʻ@&ʻ *$,&)#1+&(ʻ ")&ʻ %2#,"&,ʻ #8ʻ+1!)ʻ H##(+6 '+"&$(ʻ#8ʻ 2$? '.ʻ (#*'ʻ")&ʻ 31"&+ʻ (1&ʻ")&,&#'6 +)$--ʻ. 4&ʻ #'(ʻ *")ʻ *#ʻ+188 !&'" 1,&"&+6 "#ʻ@&ʻ$22,#4&(ʻ#8ʻ@?ʻ")&ʻ #--&!"#,ʻ#,ʻ #'",#--&,6 'ʻ ,&@-&ʻ")&ʻ 31"&+ʻ 2$?$@-&ʻ #'ʻ +1!)ʻ H##(+6 *")ʻ #'("#'ʻ 8#,ʻ")&ʻ +$8&ʻ (&2#+"'.ʻ#8ʻ+1!)ʻH##(+ʻ 'ʻ")&ʻ E$,&)#1+&ʻ%&'"#'&(ʻ 'ʻ+1!)ʻ '",?6 $'(ʻ8#,ʻ")&ʻ 5$?%&'"#8ʻ$--ʻ 31"&+ʻ (1&ʻ12#'ʻ+1!)ʻH##(+6 #,ʻ8#,ʻ")&ʻ 92#,"$"#'ʻ")&,&#86 $!!#,('.ʻ "#ʻ")&ʻ8 ,+"ʻ !!#1'"6 "$:&'ʻ#8ʻ+1!)ʻ H##(+ʻ12#'ʻ")&ʻ -$'('.ʻ#8ʻ")&ʻ +$%&>ʻ$'(ʻ *")ʻ81,")&,ʻ #'("#'ʻ")$"6 '#ʻ 5$,"6 ")&,&#8ʻ+)$--ʻ)&ʻ "$:&'ʻ#1"ʻ#8ʻ+1!)ʻ E$,&)#1+&ʻ1'"-ʻ !-&$,&(ʻ 8,#%ʻ")&'!&ʻ 12#'ʻ (1&ʻ '",?ʻ$'(ʻ5$?%&'"#8ʻ31"?6 #,ʻ12#'ʻ (1&ʻ '",?ʻ8#,ʻ 92#,"$"#'ʻ $'(ʻ *")ʻ81,")&,ʻ #'("#'ʻ")$"ʻ")&ʻ E)#-&ʻ#8ʻ+1!)ʻ H##(+ʻ+)$--ʻ@&ʻ+#ʻ!-&$,&(ʻ8,#%ʻ1!)ʻ E$,&@#1+&6 $'(ʻ")&ʻ 31"&+6 12#'ʻ$'?ʻ 3&8!&'!?ʻ#8ʻ")&ʻ T1$'"?ʻ$!!#,('.ʻ"#ʻ+1!)ʻ 8 ,+"ʻ !!#1'"6 +)$--ʻ@&ʻ 2$(6 *")'ʻ *#ʻ &$,+ʻ,#%ʻ")&ʻ3$"&ʻ#8ʻ")&ʻ 8 ,+"

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8 ,+" '",?")&,&#8' $'(' 8' $8"&,' +1!)' #'(' +)$--')$4&' @&&'' . 4&'' ")&' H##(+' #,' $'?' 5$,"")&,&#8' +)$--' @&' +#-(' #,' (+2#+&(' #86' +#' ")$"' ")&' #, . '$-' #'(&,' +)$--' @&' '#' -#' '.&,' '"&,&+"&(' '' #,')$4&' $'?' #'",#-' #4&,' ")&' +$%&6' '' +)$--' @&' -$*81-' 8#,' ")&' #--&!"#,' $'(' #'",#--&,' "#' $(% '' 8,&+)' &!1, "?' "#' @&' . 4&'' @?' ")&' #'(' #8' ")&' '&*' 5,#2, &"#,' #,' #")&,' 5&,+#'')$4 ' .' #'",#-' #4&,' +1!)' H##(+6' * ")') +' +188 ! &'' 1,&N " &+6' $'(' "#' !$'!&-' ")&' #'(' . 4&'' @?' ")&' #, . '$-' #'(&,' #8' +1!)' H##(+6' #,' "#' &9#'&,$"&') %' "#' ")&' 9"&'' #8' ")&' 8,&+)' &!1, "?' +#' . 4&'

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#27 #G '

' '(' @&' '' 81,")&,' &'$!"&(6')$"' 8' $'?' H##(+' *) !)')$4&' @&&'' &'"&,&(' "#' @&' *$,&)#1+&(' +)$--' '#' @&' (1-?' !$,, &(' $'(' (&2#+ "&(' '' ")&' E$,&)#1+&6' #,' +)$--' $8"&, *$,(+' @&' "$:&'' #1" #8' ")&' E$,&)#1+&' * ")#1" (1&' '",?' $'(' -&$,$'!&6' #,')$4 ' .' @&&'' &'"&,&(' $'(' !-&$,&(' 8#,' 92#,"$" #'' 8,#%' ")&' E$,&)#1+&' +)$--' '#' @&' (1-?' !$,, &(' $'(' +) 22&(6' #,' +)$--' $8"&, *$,(+' @&' ,&B-$'(&(' &9!&2" * ")' 5&,% ++ #'' #8' ")&' 2,#2&,' 88 !&,' #8' ")&' 1+"#%+6' +1!)' H##(+' +)$--' @&' 8#,8& "&(

GE # 3'
G I76' Z2/D '
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' '(' @&' '' 81,")&,' &'$!"&(')$"' 12#'' ")&' '",?' $'(' $'(N ' .' #8' $'?' H##(+' "#' @&' *$,&)#1+&(6' ")&' 2,#2&,' 88 !&,' #8' ")&' 1+"#%+' +)$--' "$:&' $' 2$," !1-$,' !!#1'' #8' ")&' +$%&6' $'(' +)$--' %$,:' ")&' #'N "&'"+' #'' &$!)' 5$! :$.&6' $'(' +)$--' &'"&,' ")&' +$%&' '' $' ##:' "#' @&' :&2" 8#,' ")$" 51,2#+&' $'(' '#' H##(+' *) !)')$4&' @&&'' +#' *$,&)#1+&(' +)$--' @&' "$:&'' #,' (&- 4&,&(' 8,#%' ")&' E$,&)#1+&' &9!&2" 12#'' (1&' '",?6' $'(' 1'(&,' $,&' #8' "-&' 2,#2&,' 88 !&,+' 8#,' 92#,"$" #'6' #,' 12#'' (1&' '",?' $'(' 5$?%&'' #8' 31"?' 8#,' #%&' V+&' $'(' *)&'&4&,' ")&' E)#-&' #8' ")&' H##(+' *$,&)#1+&(' 1'(&,' $'?' '",?' +)$--' @&' !-&$,&(' 8,#%' ")&' E$,&)#1+&6' #,' *)&'&4&,' 81,")&,' %&' +)$--' @&' .,$'"&(' 8#,' $'?' +1!)' H##(+' "#' ,&%$ '' *$,&)#1+&(6' $'' !!#1'' +)$--' @&' %$(&' #1" 8' ")&' T1$'"' "?' 12#'' *) !)' ")&' 31" &+')$4&' @&&'' 2$ (6' $'(' #8' ")&' T1$'"' "?' &92#,"&(6' $'(' #8' ")&' T1$'"' "?' X"#' @&' ")&'' $+!&,"$ '&([' #8' ")&' H##(+' +"-' ,&%$ ' '.' '' ")&' E$,&)#1+&6' $+' ")&' $+&' %$?' @&6' (&(1!" ' .' 8,#%' ")&' E)#-&' ")&' T1$'"' "?' !#'"$ '&(' '' $'?' *)#-&' 5$! :$.&+' X 8' $'?[' *) !)' %$?')$4&' @&&'' $@$'(#'&(' 8#,' ")&' 31" &+' $'(' 8' 12#'' +1!)' !!#1'' ")&,&' +)$--' '' & ")&,' $+&' $22&$,' "#' @&' $'?' 3&8 ! &'!?' #8' ")&' #, . '$-' T1$'"' "?6' ")&' 31"?' 2$?$@-&' 12#'' ")&' %#1'' #8' +1!)' 3&8 ! &'!?' +)$--')&'' @&' 2$ (

HH I#3' .'
GE' 3 ' OD'
32]D#' #'
72#G #4
) ' GE' 3 '
OD' 32]D#' I3'
Z 3" I3'
#3/6
* D. H D#H DE'
3 ' OD' 2EHD/^
32 #DG
* I3 DE' 3 ' OD'
C2 G' IC #'
* D. H D#H DE

' '(' @&' '' 81,")&,' &'$!"&(')$"' '' +)$--' @&' -$*81-' 8#,' ")&' #--&!"#,' $'(' #'",#--&,6' 1'(&,' +1!)' &.1-$" #'+' $+' ")&?' +)$--' +&&' 8 "6' "#' 2&,% '' %#(&,$"&' $%2-&+' "#' @&' "$:&'' #8' $'?' H##(+' +#' *$,&)#1+&(6' * ")#1" '",?6' $'(' * ")#1" 5$?%&'' #8' 31"?6' &9!&2" $+' ")&' +$%&' +)$--' &4&'"1$--?' @&!#%&' 2$?$@-&6' $+' #'' $' 3&8 ! &'!?' #8' ")&' #, . '$-' T1$'"' "?

2O C7DE' O26'
W

< ' '(' @&' '' 81,")&,' &'$!"&(6')$"' '' +)$--' @&' -$*81-' 8#,' ")&' #--&!"#,' $'(' #'",#--&,6' 1'(&,' +1!)' &.1-$" #'+' $+' ")&?' +)$--' +&&' 8 "6' "#' 2&,% '' ")&' 5,#2, &"#,' #,' #")&,' 5&,+#'')$4 ' .' #'",#-' #4&,' $'?' H##(+' +#' *$,&)#1+&(' "#' +#,"6' +&2$,$"&6' $'(' 2$! :' $'(' ,&B2$! :' $'?' +1!)' H##(+6' $'(' "#' %$:&' +1!)' -$*81-' -"&,$" #'+' ")&,& '6' #,' ,,$'.&N %&'"+' $'(' ++#,"%&'"+' ")&,&#86' $+' %$?' @&' '&!&++$,?' 8#,' ")&' 5,&+&,4$N " #'' #8' +1!)' H##(+6' #,' '' #,(&,' "#' ")&' $-&6') 2%&'"6' #,' -&.$-' 3 +2#+$-' #8' ")&' +$%&' $'(' $-+#' "#' 2&,% '' $'?' 5$,"+' #8' +1!)' H##(+' +#' +&2$,$"&(' "#' @&' (&+",#?&(6' @1" * ")#1" 5,&>1(!&' "#' ")&' -$ %' 8#,' 31"?' 12#'' ")&' *)#-&' #, . '$-' T1$'"' "?' #8' +1!)' H##(+] 5,#4 (&(' I' ' $-*$?+6

GE' %$?
"DE /3DH ' 2#G'
W
* I36' G ID' #'
8 F" T1$'B

@" 7D+2H] ' 24DE 026 OD 8#,731"?f

$-*$?+6 ")$" " +)$-- @& -$*81- 8#,'$'? 5&,+#'' "# $@$'(#'' $'? *)#-& 5$!:$.&+ "# ")& 88 !&,+ #8")& 1+"#%+ 8#,' ")& 31" &+6 * ")#1" @& '.' - $@-& "# $'? 31"? 12#'' ")& +$%&

GE Z2/D ' " IEDG O2F . f =DO F2f Z 3" I3 +26 ' /2D.33 .* I36 '

< ' '(' @& " 81,")&,'&'$!"&(6)$" H##(+ *$,&)#1+&('$" $'? *$,&)#1+ '.' 5#," '' $'? #8")& ('5#++&++ #'+ '' * '@& '.' &'"&,&(6 %$? @& (&- 4&,&(6 1'(&,' ")& 1")#, "? #8 ")& 2,#2&,' 88 !&,'#8 ")& 1+"#%+6 * ")#1" 5$?%&'' #8 31"?6 &9!&2" 8#,' $'? 3&8 ! &'!? ")&,&#87 8#,' ")& 51,2#+& #8 &%#4$- "# $'#")&,' *$,&)#1+ '.' 5#," '' ")& +$%& 5#++&++ #'6 1'(&,' #'(6 "# ")& $" +N 8$!" #'' #8 +1!)' 88 !&,6 8#,' ")& (1& ,, 4$- $'(',&B*$,&)#1+ '.' #8 +1!)' H##(+ $" +1!)' #")&,' 5#,"

7f GE 3 ' OD H7D2/DG Z 3" # Z ' - D2/E f f E 7G

< ' '(' @& " 81,")&,'&'$!"&(')$" $-- H##(+ *) !)')$4& @&&'' +# *$,&)#1+&(' #,' ,&B*$,&)#V+&(' +)$-- @& (1-? !-&$,&(6 & ")&,' 8#,' 92#,"$" #'' #,' 8#,' #%& #'+1%2" #'6 * ") '' *# &$,+ 8,#% ")& 3$? #8 8 ,+" '",? 8#,' ")& *$,&)#1+ '.' ")&,&#8 ' $'(' 8 $'? +1!)' H##(+ @& '#" +# !-&$,&(6 " +)$-- @& -$*81- 8#,' ")& #--&!"#,' $'(' #'",#--&,'"# !$1+& ")& +$%& "# @& +#-(6 $'(' ")& 5,#(1!& +)$-- @& $22- &(6 8 ,+" "# ")& 5$?%&'' #8 ")& 31" &+6 '&9" #8 E$,&)#1+& &'' $'(' #")&,')$,.&+6 $'(' ")& 4&,2-1+ X 8 $'?[+)$-- @& 2$ (' "# ")&

AI/3"D/ OD 026 OD 4/2#3D '

5,#2, &"#,]' 5,#4 (&('$-*$?+6 ")$" " +)$-- @& -$*81- 8#,' ")& #--&!"#,' .'(' #'",#--&,'"# .,$'" 81,")&,' %& 8#,' $'? +V!)' H##(+ "# ,&%$ '' *$,&)#1+&(6 8")&? +)$-- +&& 8 " +# "# (#

#G # #3/6 . f &C /323 #

<V ' '('@& "81,")&,'&'$!"&(')$" 12#''")& '",? 1"*$,(+ #8 $'? H##(+ "# @& &92#,"&('8,#% ")& E$,&)#1+&6 ")& 5&,+#'' &'"&, '.' ")& +$%& +)$-- . 4& &!1, "? @? #'(' '' ,&@-& ")& 31" &+ #8 %2#,N "$" #'' #'' ")& T1$'' "? #8 +1!)' H##(+6 * ")' *# +188 ! &'" 1,&" &+6 "# @& $22,#4&(' @? ")& #--&!"#,'#,' #'",#--&,6 ")$" ")& +$%& +)$-- @& -$'(&(' $" ")& 5-$!& 8#,' *) !)' ")&? @& &'"&,&(' 1"*$,(+6 #,' @& #")&,N * +& $!!#1'"&(' 8#,'"# ")& $" +8$!" #'' #8 ")& #--&!"#,' $'(' #'",#--&,

+ ZD/f 3 '2C^ C #3 3"D/ + /3E

< ' '(' @& " 81,")&,'&'$!"&(6)$" " +)$-- @& -$*81- 8#,' + $>&+"?6 @? ,(&,' '' #1'! -6 8,#% %& "# %& "# $22# '"$'? 5#," '' + $>&+"?;+ 5#++&++ #'+ '' * '"# @& $ 8,&& *$,&)#1+ '.' 5#," 8#,' $-- #,' $'? #8")& 51,2#+&+ #8 ") + !"' $'(' &4&,? +1!)' 5#," +# $22# '"&(' @? + $>&+"? +)$-- @&6 8#,' $-- ")& 51,2#+&+ &92,&++&(' '' +1!)' ,(&,6 $ 8,&& *$,&)#1+ '.'5#," 1'(&,') + !"6 $+ 8 $22# '"&(' @? ")& +$%&

GE ./ O' B2I/ 3 IE E2OD* I3 DE 2#G=D4 I72 ' 3 #E 2E DE3' #G 2 GE '

' '(' *)&,&$+ " +&>"2&(&'" ")$" $-- 31" &+ $'(' &.1-$" #'+ ,&-$" '.'"# %2#,"$" #'' $'(' 92#,"$" #'' '"# $'('8,#% + $>&+"?;+ / ' +)#1-(' @& &9"&'(&(' "# ")& +-$'(' #8 - @& " ")&,&8#,& &'$!"&(')$" $-- H##(+6 E$"&+6 $'(' &,!)$'(L&6 ")& H,#*")6 5,#(1!&6 #,' $'18$!"1,& #8 ")& +-$'(' #8 '$'(' $-- H##(+6 E$,&+6 $'(' &,!)$'(L& *) !)')$4 '.' @&&'' %2#,"&(' '"# ")& +$ (' +-$'(' #8 ' +)$-- @& %2#,"&(' 8,#% ")&'!& '"# $'? 5$," #8 ")& V' "&(' D '.(#% #8 ' ($'(' ' #,' '"# $'? 5#++&++ #'+ #8 + $>&+"?6 + & ,+ #,' 1!!&++#,+6 +)$-- @& - $@-&6 12#'' +1!)' %2#,"$" #'' '"# ")& V' "&(' D '.(#% #,' '"# $'? +1!)' 5#++&++ #'+ ,&+2&!" 4&-?6 "# ")& 5$?%&'' #8 ")& +$%& 31" &+ $'(' +)$-- @& +1@>&!" "# ")& +$%& &.1-$" #'+ $+

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")&ˢ - :&ˢ H##(+6ˢ E$,&+6ˢ $'(ˢ &,!)$'(L&ˢ @& '.ˢ #8ˢ ")&ˢ H,#*")6
5,#(1!&6ˢ #,ˢ $'18$!"1,&ˢ #8ˢ +ˢ $>&+"?;+ˢ +-$'(+ˢ 'ˢ ")&ˢ / ˢ ˢ
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-' '(' @&' '' 81,")&,' &'$!"&(6')$"6' 1'(&,' 1")#, "?' #8' $' E , " #8' ++ +"$'!&' .,$'"&(' @?' ")&' 12&, #,' #,' 12,&%&' #1,'' #8' R1+" !& 7#1,'' #8' < !&' (% ,$-"?')$4 ' .' R1, +(!" #'' '' ")&' 5-$!&' X*)#' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' "#' .,$''' +1!)' E , '' #8' ++ +"$'!&' 12#'' 22- !$" #'' %$(&' "#' ")&%' 8#,' ")$"' 51,2#+&' @?' ")&' 2, ' ! 2$-' 88 !&,+' #8' +' $>&+"?;+' 1+"#%+[6' '' +)$--' @&' -$*81-' 8#,' $'?' 88 !&,' #8' ")&' 1+"#%+6' "$: ' .' * ")') %' $' 5&$!&' 88 !&,6' "#' &'"&,' $'?' 1 -(' .' #,' #")&,' 5-$!&' '' ")&' 3$?" %&6' $'(' "#' +&$,!)' 8#,' $'(' +& L&' $'(' +&!1,&' $'?' H##(+' - $@-&' "#' #,8& "1,&' 1'(&,'") +' !"6' $'(6' '' !$+&' #8' &!&++ "?6' "#' @,&$:' #2&'' $'?' 3##,+' $'(' $'?')&+"+' #,' #")&,' 5$!:$.&+' 8#,' ")$"' 51,2#+&' $'(' +1!)' E , '' #8' ++ +"$'!&6' *)&'' ++1&(6' +)$--' @&' (&&%&(' "#' @&' '8#,!&' (1, ' .' ")&' *)#-&' #8' ")&' & . '' '' *) !)' ")&' +$%&' +)$--')$4&' @&&'' .,$'"&(6' $'(' 8#,' *&-4&' #'")+' 8,#%6' ")&' #'!-1+ #'' #8' +1!)' & . '

' OE3/ I H3 #
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GE' ED dDG'
3 ' OD' EDH I /DG'
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' '(' @&' '' 81,")&,' &'$!"&(6')$"' $--') ' .+' *) !)' +)$--' @&' +& L&(' $+' @& ' .' - $@-&' "#' #,8& "1,&' 1'(&,' ") +' !"6' #,' 1'(&,' $'?' ?77' %$(&' 8#,' ")&' 5,&4&'"#'' #8' %1..- ' .6' #,' ,&-$" ' .' "#' ")&' &N 4&'1&' #8' 1+"#%+6' #,' "#' ,$(&' #,' $4 .$" #'6' +)$--' @&' "$:&'' 8#,")N * ")' $'(' (&- 4&,&(' '"#' ")&' 1+"#(?' #8' ")&' #--&!"#,' $'(' #'",#--&,' #8' ")&' 1+"#%+' $' ")&' 1+"#%' #1+&' '&9'' "#' ")&' 5-$!&' *)&,&' ")&' +$%&' *&,&' +& L&(6' *)#' +)$--' +&!1,&' ")&' +$%&' @?' +1!)' &$'+' $'(' '' +1!)' $''&,' $+' +)$--' @&' 2,#4 (&(' $'(' (,&!"&(' @?' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' 1+"#%+' $'(' $8"&,' #'(&%'$" #'' ")&,&#8' ")&' #--&!"#,' $'(' #'",#--&,' +)$--' !$1+&' ")&' +$%&' "#' @&' +#-(' @?' 21@- !' 1!" #'' "#' ")&' @&+'' ((&,'] 5,#4 (&(' $-*$?+6' ")$"' '' +)$--' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' #8' ")&' 1+"#%+' "#' (,&!'' '' *)$"' $''&,' ")&' 5,#(1!&' #8' +1!)' $-&' +)$--' @&' $22- &(6' #,6' '' - &1' #8' +1!)' $-&6' '' (,&!'' ")$"' $'?' #8' +1!)') ' .+' +)$--' @&' (&+",#?&(6' #,' +)$--' @&' ,&+&,4&(' 8#,' ")&' 21@- !' &,4 !&

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$ ' ? 3 +21"& +)$-- $, +& *)&")&, ' ")& 31" &+)$4& @&&" 2$ (' 8#, ' ")&
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")& $%& #8 ")& * '&,6 * ")) + &+ (&'!& $'(!!12$" #'6 '#,
1'-&++ $") "# ")& 5,#2&,"? " +1!)) '. @& %$(& @? ")& * '&,6
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") + !"6 #, 1'(&, $'? !" %$(& 8#, ")& 5,&4&'" #'' #8 %1..- '.6 5&'$-" &+6
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8#--#*+ X")$" +"# +$?6[$8"&, (&(1!" '. ")&)$,.&+ #8 5,#+&!1" #''
8,#%6 ")& 5,#(1!& ")&,&#8 '&) ,(5$," #8 ")& '& 5,#(1!& +)$--
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")& 5#," #, 5-$!& *)&,& +1!) 5&'$-" &+ #, #,8& "1,&+ +)$-- @& ,&!#N
4&,&(8#, ")& V+& #8 + $>&+"?6 '&) ,(5$," "# ")& H#4&,'#,
#, #%%$'(&,B 'B) && #8 ")& +$(#-#'? #, 5-$'"$" #'6 $'(")&
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")& +$%& &9!&2" '. +1!) & L1,&+ $+ +)$-- @& %$(& $" @? ")&
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)$,.&+ #8 5,#+&!1" #'' 8,#%6 ")& .,#++ 5,#(1!& ")&,&#86 +)$-- @& 2$ (
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$+' $8#,&+$ (' "#' ")&' #--&!"#,' #8' +' $>&+"?;+' 1+"#%+6' "#' $ ' (' 8#,' ")&' V+&' #8' +' $>&+"?7' $ ' (' ")&' #")&,' # &"?' "#') %6' #,' ")&%' *)#' +)$--6' +& L&6' '8#,%6' $ ' (' +1&' 8#,' ")&' +$%&6' $ '?' $ * 6' 1+"#%6' #,' V+$.&' "#' ")&' !#'",$,?' '#" * ")+"$ ' (' . ' +1@>&!"' '&4&,")&-&++' "#' +1!)' +", @1A' "#'' #8' ")&' 5,#(1!&' #8' ")&' & L1,&+' +#' %$(&' $"' &$6' $+' *&--' * ")' ,&N .$,(' "#' ")&' # &"?')&,& 'B@&8#,&' .,$ '"&(' "#' Q+' $>&+"?' $+' * ")' ,&.$,(' "#' ")&' #")&,' # &"? . 4&'' "#'- ,&' & L#,' #,' 5,J &!1"#,6' $+' +' $>&+"?' +)$--' ") ' :' 8' "#' #,(&,' $ ' (' (,&!"' @?' $ '?' ,(&,' #,' ,(&,+' #8' #1' ! -6' #,' @?' $ '?' 5,#!-$%$" #'' #,' 5,#!-$%$" #' +' "#' @&' %$(&' 8#,' ")$"' 51,2#+&

0 323 #' ' I 3E! < ' ' (' @&' "' 81,")&,' &'$!"&(6')$"' $--' !" #' +' #,' 1 "+' 8#,' ")&' &!#4&,?' #8' $ '?' #8' ")&' 5&'$-" &+' #,' #,8& "1,&+' %2#+&(' @?' ") +' !"' %$?' @&' !#%%&' !&(' #,' 2,#+&!1"&(' $"' $ '?' %&' * ") ''),&&' &$,+' $8"&,' ")&' 88&'!&' !#%% ""&(' @?' ,&$+#'' *)&,&#8' +1!)' 5&'$-"?' #,' #,8& "1,&' +)$--' @&' '!1,,&(6' $ '?' $ * 6' V+$.&6' #,' 1+"#%' "#' ")&' !#'",$,?' '#" * ")+"$ ' (' .

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DH I / 36' 3 ' 2O GD' 2#' CCD27 ./ O' * DH/DD' .' HD' GO ^ /2736' (I/3 < ' 5,#4 (&(' $-*$?+6' $ ' (' @&' "' 81,")&,' &'$!"&(')$"' '' $ '?' $+&' '' *) !)' 5,#!&&(' .+' +)$--')$4&' @&&'' #,' +)$--')&,&$8"&,' @&' '+" "1"&(' '' $ '?' #1,"' #8' < !&' (% ,$-"?' #,' #")&,' !#%2&"&'' #1,"6' '' $ '?' #8' +' $>&+"?;+' 5#++&++ #'+' @,#$(' $.$ '+' $ '?') 26' <&++&-6' #$"6' H##(+6' #,' 88&!"+6' 8#,' ")&' &!#4&,?' #8' $ '?' 5&'$-"?' #,' #,8& "1,&' 1'(&,' $ '?' !"' 8#,' ")&' 5,&4&'" #'' #8' %1..- ' .6' #,' ,&-$" ' .' "#' ")&' &4&'1&' #8' 1+"#%+6' #,' "#' ")&' ,$(&' #,' $4 .$" #'' #8' ")&' V' "&(' D ' .(#%' #,' #8' $ '?' #8' +' $>&+"?;+' 5#++&++ #'+' @,#$(6' ")&' 9&N !1" #'' #8' $ '?' &'"&'!&' #,' 3&!,&&' ,&+"#, ' .' +1!)') 26' <&++&-6' #$"6' H##(+6' #,' 88&!"+' "#' ")&' -$ %$'' ")&,&#87' *) !)' +)$--' @&' 2,#'#1'!&(' @?' ")&' +$ (' < !&' (% ,$-"?' #1,"' '' *) !)' +1!)' 5,#!&&(' .+' +)$--')$4&' @&&'')$(6' +)$--' '#"' @&' +1+2&'(&(' @?' ,&$+#'' #8' $ '?' 22&$-' *) !)' +)$--' @&' 2,$?&(' $ ' (' $--#*&(' 8,#%' +1!)' &'"&'!&6' 2,#4 (&(' ")$"' ")&' 5$,"?' #,' 5$," &+' $22&--$"&' +)$--' . 4&' +188 ! &'' &!1, "?6' "#6' @&' $2N 2,#4&(' #8' @e7' ")&' #1,"6' "#' ,&' (&,' $ ' (' (&- 4&,' ")&') 26' <&++&-6' #$"6' H##(+6' #,' 88&!"+' !#'!&,' '.' *) !)' +1!)' &'"&'!&' #,' 3&!,&&' +)$--' @&' 2,#'#1'!&(6' #,' ")&' 81--' <$-1&' ")&,&#86' "#' @&' $+!&,"$ '&(' & ")&,' @?' .,&&%&'' @&' * &&'' ")&' 5$," &+6' !$+&' ")&' 5$," &+' !$''#' $.,&&6' ")&'' @?' 22,$ +&%&'' 1'(&,' ")&' 1")#, "?' #8' ")&' +$ (' #1,"6' "#' ")&' 22&--$'"' #,' 22&--$'"+' '' !$+&' ")&' &'"&'!&' #,' 3&!,&&' +#' $2N 2&$-&(' 8,#%' +)$--' @&' ,&4&,+&6' $ ' (' +1!)') 26' <&++&-6' #$"6' H##(+6' #,' 88&!"+' @&' 1-" %$"&-?' !#'(&%'&(

+D/E #E' 3 ' O2]D' D d I /DE' I#GD/' 0H'Q' B $ ' (' @&' "' 81,")&,' &'$!"&(6')$"' $--' 5&,+#'+' $1")#, L&(' "#' %$:&' & L1,&+' 1'(&,' $"' !"' 2$++&(' '' ")&' 8")' &$,' #8' ")&' & . ' #8' +' -$"&' $>&+"?6' '" "1-&(' * 5 ' +)$--6' '' %$: ' .' (' 3 ' %

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8& "1,&+' !,&$"&(' @?' ")&' +$ (' !"' 2$++&(' '' ")&' 8")' &$,' #8' +' -$"&' .' +D#273 DE'
$>&+"?6' *)&")&,' 2&!1' $,?' #,' +2&! 8 !6' +)$--' X&9!&2"' '' $+&+'
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@?' ")&' +$%&' E$?+' $'(' &$'+6' $'(' +1@>&!"' "#' ")&' +$%&' 1-&+' $'('
3 ,&!" #'+6' $+' $'?' 5&'$-" &+' $'(' #,8& "1,&+' '!1,,&(' '' '(
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")&' 5#++&++ #'+' #8' ")&' +$ (' #%2$'?[6' $+' "#' +' $>&+"?' '' #1'! -'
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!#'",$,?' '#"*' ")+"$'('.' $'(' 8' $'?' H##(+' +)$--' @&' %2#,"&(' #,'
&92#,"&(' '' $'?' $''&,' !#'",$,?' "#' $'?' +1!)' ,(&,' #8' +' $>&+"?'
'' #1'! -6' ")&' +$%&' +)$--' @&' 8#,8& "&(6' "#.&")&,' * ")' ")&') 2'
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#8' ")&' +$ (' #%2$'?;+')$,"&,' $'?' &$6' 8#,' ")&' 51,2#+&' #8' @&' '.' 3"D' (0C2#6!
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)$,"&,6' "#' @&' &92#,"&(' 8,#%' $'?' 5-$!&' '' +1!)' 5#++&++ #'6' "#' .#
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,E3ʾ ,2#I2/6ʾ
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< ʾ '(ʾ @&ʾ "ʾ 81,")&,ʾ &'$!"&(Aʾ)$"ʾ $--ʾ) 2+ʾ @1 -"ʾ $"ʾ $'?ʾ 5-$!&ʾ * ") 'ʾ ")&ʾ % "+ʾ #8ʾ ")&ʾ #. ʾ ʾ #%2$'?;+ʾ)$,"&,ʾ 2, #,ʾ "#ʾ ")&ʾ ,+"ʾ 3$?ʾ #8ʾ & ʾ '&ʾ ")#1+$'(ʾ & .)"ʾ)1'(,&(ʾ $'(ʾ + 9"&&'6ʾ $'(ʾ *) !)ʾ ")&'ʾ *&,&ʾ $'( )$4&ʾ !#'" '1&(ʾ &4&,ʾ + '!&ʾ "#ʾ @&ʾ +#-&-?ʾ ")&ʾ 5,#2&,"?ʾ #8ʾ +ʾ $>&+"?;+ʾ 1@>&!"+6ʾ +)$--ʾ @&ʾ (&&%&(ʾ "#ʾ @&ʾ (ʾ) 2+ʾ 8#,ʾ $--ʾ ")&ʾ 51,2#+&+ʾ #8ʾ ,$(&ʾ "4") 'ʾ ")&ʾ +$ (ʾ % "+6ʾ '!-1('.ʾ ")&ʾ ʾ ʾ ʾ) ʾ $'?ʾ ") '.ʾ 'ʾ ") +ʾ !"6ʾ #,ʾ "ʾ $'?ʾ #")&,ʾ !"ʾ #,ʾ !"+ʾ 2$++&(ʾ 'ʾ ") +ʾ 2,&+&'"ʾ &++ #'ʾ #8ʾ 5$,- $%&'"6ʾ "#ʾ ")&ʾ !#'",$,?ʾ '#"* ")+"$'('.

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< ʾ '(ʾ @&ʾ "ʾ 81,")&,ʾ &'$!"&(ʾ)$"ʾ "ʾ +)$ʾ @&ʾ -$*81-ʾ B8#,ʾ ")&ʾ) 22&,ʾ #8ʾ $'?ʾ E '&"-&ʾ 5,#(1!&ʾ #8ʾ ")&ʾ ʾ ʾ ʾ) ʾ#,ʾ »B.ʾ 3&2&'(&'! &+6ʾ *) !)ʾ +ʾ "#ʾ @&ʾ &92#,"&(ʾ 8,#%ʾ ")&'!&6ʾ "#ʾ .#ʾ @&8#,&ʾ ")&ʾ !) &8ʾ 88 !&,ʾ #8ʾ ")&ʾ 1+"#%+6ʾ 2#Gʾ %$:&ʾ $'(ʾ + .'ʾ $'ʾ 88 ($4 "ʾ @&8#,&ʾ) %ʾ ")$"ʾ +1!)ʾ E '&ʾ *$+ʾ ,&$--?ʾ $'(ʾ " ʾ ʾ ")&ʾ 5,#(1!&ʾ #8ʾ ")&ʾ ʾ ʾ ʾ) ʾ#,ʾ #8ʾ "+ʾ 3&2&'(&'! &+ʾ $'(ʾ +1!)ʾ 88 !&,ʾ +ʾ)&,&@?ʾ $1")#, L&(ʾ $'(ʾ ,&C1 ,&(ʾ "#ʾ $(% ' +"&,ʾ +1!)ʾ 88 ($4 "6ʾ $'(ʾ "#ʾ .,$'"ʾ $ʾ &," 8 !$"&ʾ ")&,&#"6ʾ +&"" '.ʾ 8#,")ʾ 8ʾ +1!)ʾ &," 8 !$"&ʾ ")&ʾ $%&ʾ #8ʾ ")&ʾ) 2ʾ 'ʾ *) !)ʾ ")&ʾ E '&ʾ +ʾ "#ʾ @&ʾ &92#,"&(6ʾ $'(ʾ ")&ʾ 3&+" '$" #'ʾ #8ʾ ")&ʾ +$%&

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< ʾ '(ʾ @&ʾ "ʾ 81,")&,ʾ &'$!"&(6ʾ)$"ʾ "ʾ +)$--ʾ @&ʾ -$*81-ʾ 8#,ʾ $'?ʾ 5&,+#'ʾ *)#ʾ +ʾ $@#1"ʾ "#ʾ &92#,"ʾ 8,#%ʾ $'?ʾ #8ʾ ")&ʾ +-$'(+ʾ #8ʾ ʾ & ʾ ʾ#,ʾ +ʾ "#ʾ ")&ʾ V' "&(ʾ D '.(#%6ʾ #,ʾ "#ʾ $'?ʾ #8ʾ ")&ʾ (ʾ5#++&++ #'+ʾ 'ʾ * ʾ$'?ʾ H##(+ʾ #8ʾ ")&ʾ H,#*")ʾ #,ʾ 5,#(1!&ʾ #8ʾ $'?ʾ #8ʾ ")#+&ʾ +-$'(+6ʾ #,ʾ $'?ʾ H##(+ʾ %$'18$!"1,&(ʾ 8,#%ʾ $"&, $-+ʾ *) !)ʾ *&,&ʾ ")&ʾ H,#*")ʾ #,ʾ 5,#(1!&ʾ ")&,&#86ʾ #,ʾ #8ʾ ")&ʾ V' "&(ʾ D '.(#%6ʾ "#ʾ .#ʾ @&8#,&ʾ $'?ʾ $. +",$"&ʾ #8ʾ ")&ʾ +-$'(ʾ 8,#%ʾ *) !)ʾ ")&ʾ H##(+ʾ $,&ʾ "#ʾ @&ʾ &92#,"&(6ʾ $'(ʾ %$:&ʾ $'(ʾ + .'ʾ @&8#,&ʾ) %ʾ $ʾ 3&!-$,$" #'ʾ ")$"ʾ +1!)ʾ H##(+6ʾ (&+!, @ '.ʾ ")&ʾ +$%&6ʾ $,&ʾ #8ʾ +1!)ʾ H,#*")ʾ #,ʾ 5,#(1!&6ʾ #,ʾ #8ʾ +1!)ʾ $'18$!"1,&6ʾ $'(ʾ +1!)ʾ $. +",$"&ʾ +)$--ʾ $(% ' +"&,ʾ $'(ʾ + .'ʾ +1!)ʾ 3&!-$,$" #'ʾ $'(ʾ ")&,&12#'ʾ ")&ʾ H#4&,'#,6ʾ &1"&'$'"ʾ H#4&,'#,6ʾ #,ʾ #%%$'(&,B 'B) &8ʾ #8ʾ ")&ʾ +-$'(ʾ 8,#%ʾ *) !)ʾ ")&ʾ H##(+ʾ $,&ʾ "#ʾ @&ʾ &92#,"&(ʾ +)$--6ʾ 12#'ʾ ")&ʾ 3&- 4&,?ʾ "#ʾ) %ʾ #8ʾ +1!)ʾ 3&!-$,$N "#'6ʾ .,$'"ʾ $ʾ &," 8 !$"&ʾ 1'(&,ʾ) +ʾ $'(ʾ #8ʾ ")&ʾ 5,##8ʾ !#'"$ '&(ʾ 'ʾ +1!)ʾ 3&!-$,$" #'6ʾ +"$" '.ʾ ")&ʾ) 2ʾ 'ʾ *) !)ʾ $'(ʾ ")&ʾ 5#,"ʾ "#ʾ *) !)6ʾ 'ʾ ")&ʾ V' "&(ʾ D '.(#%ʾ #,ʾ $'?ʾ +1!)ʾ 5#++&++ #'6ʾ ")&ʾ H##(+ʾ $,&ʾ "#ʾ @&ʾ &92#,"&(ʾ ʾ $'(ʾ +1!)ʾ &," 8 !$"&ʾ +)$--ʾ @&ʾ ")&ʾ 2,#2&,ʾ 3#!1%&'"ʾ "#ʾ @&ʾ 2,#(1!&(ʾ $"ʾ +1!)ʾ 5#,"+ʾ ,&+2&!" 4&-?ʾ 'ʾ 2,##8ʾ ")$"ʾ ")&ʾ H##(+ʾ %&'N "#'&(ʾ ")&,&'ʾ $,&ʾ #8ʾ ")&ʾ H,#*")6ʾ 5,#(1!&6ʾ #,ʾ $'18$!"1,&ʾ #8ʾ +1!)ʾ +-$'(ʾ ,&+2&!" 4&-?

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+$ (' +-$'(+' 8,#%' $'?'#")&,' 5-$!&' ")$'' 8,#%' ")&' V' "&('D '.(#%6' ? #4G O!'
#,' '#")$4 '.'@&&'' (1-?'&'"&,&('$'(' !-&$,&(' '' ")&' V' "&('D '.(#%'
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' '(' @&' '' 81,")&,' &'$!"&(6')$'' &4&,?' 5&,+#'' *)#' +)$--' @&' 8#1'(' #,' (+!#4&,&(' "#')$4&' @&&'' #'' @#$,(' $'?' <&++&-' #,' #$'' - $@-&' "#' #,8& "1,&' 1'(&,' $'?' !'' ,&-$" ' .' "#' ")&' &4&'1&' #8' 1+"#%+6' 8#,' @& ' .' 8#1'(' * ") '' '&' &$.1&' #8' ")&' +-$'(+' #8' '& ' ' #,' +')$4 ' .' #'' @#$,(' #,' '' $'?' $''&,' $""$!)&(' #,' $88 9&(' ")&,&"#6' #,' !#'4&? ' .' #,')$4 ' .' !#'4&?&(6' '' $'?' $''&,6' +1!)' H##(+' #,' #")&,') ' .+' $+' +1@>&!'' +1!)' <&++&-' #,' #$'' "#' #,N 8& "1,&6' #,' *)#' +)$--' @&' 8#1'(' #,' (+!#4&,&(' "#' - $4&' @&&$' #'' @#$,(' $'?' <&++&-' #,' #$'' 8,#%' *) !)' $'?' 5$,'' #8' ")&' $,.#' +)$--')$4&' @&&'' "),#*'' #4&,@#$,(' (1, ' .')$!&6' #,' +"$4&(' 2,' (&+",#?&(6' +)$--' 8#,8& '' ")&' 1%' #8' '&')1'(,&(' 5#1'(+

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' '(' @&' '' 81,")&,' &'$!"&(')$'' 8'$'?' 5&,+#'' +)$--6' '' $'?' #8' +' $>&+"?;+' 5#++&++ #'+' @,#$(6' !#1'"&,8& '' #,' 8$-+ 8?6' ;' * -81--?' 1+&' *)&'' !#1'"&,8& "&(' #,' 8$-+ 8 &(6' K1'?' '",?6' E$,,$'"6' #! :&"6' ,$'+ ,&6' #,' #")&,' 3#!1%&'' 8#,' ")&' 1'-$(' .6' -$(' .6' &'"&, ' .6' ,&2#," ' .6' #,' !-&$, ' .' $'?') 2' #,' <&++&-6' #,' 8#,' ")&' -$'(' .6' +) 22 ' .6' #,' ,&%#4 ' .' #8' $'?' H##(+6' "#,&+6' $..$.&6' #,' ," !-&' *)$"&4&,6' #,' +)$--' @?' $'?' 8$-+&' "$"&%&'' 2,#!1,&' $'?' E , " ' .' #,' 3#!1%&'' "#' @&' %$(&' 8#,' $'?' +1!)' 51,2#+&6' 2,' +)$--' 8$-+&-?' %$:&' $'?' $")' #,' 88 ,%$" #'' ,&C1 ,&(' @?' $'?' !'' 8#,' ,&.1-$" ' .' ")&' ,$(&' #8' ")&' ('5#++&++ #'+' @,#$(6' #,' +)$--' 8#,.&' #,' !#1'"&,8& '' $' &," 8 !$"&' #8' ")&' +$ (' $")' #,' 88 ,%$" #'6' #,' +)$--' 21@-+)' +1!)' &," 8 !$"&' :'#* ' .' ")&' +$%&' "#' @&' +#' 8#,.&(' #,' !#1'"&,8& "&(6' &4&,?' 5&,+#'' +#' #88&'(' .' +)$--' 8#,' &4&,?' +1!)' 88&'!&' 8#,8& '' ")&' 1%' #8' *#')1'(,&(' 5#1'(+' $'(' +1!)' 5&'$-"?' +)$--' $'(' %$?' @&' 2,#+&!1"&(6' +1&(' 8#,6' $'(' ,&!#4&,&(' '' - :&' $''&,' $'(' @?' +1!)' E$?+' $'(' &$'+' $+' $'?' 5&'$-"?' %$?' @&' 2,#+&!1"&(6' +1&(' 8#,6' $'(' ,&!#4&,&(' V'(&,' ")&' 5,#4 + #'+' $'(' 3 ,&!" #'+' #8' ")&' +$ (' -$+"B%&'" #'&(' !"

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3,$*@$!:' #8' 9! +&' #'' 92#,"$" #'' 8,#%' ")&'!&6'
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'#% '$"&(' \' !)&(1-&' #8' !&'+&' H##(+6^' +)$--' '#' @&' %2#,"&(' '"#' 3"D'. 77 Z #4'
6")&' ' ' ' '#,' &92#,"&(' 8,#%' $'?' 5-$!&' "#' @&' !$,, &(' "#' ")&' ' 2#,"$@-&7#7?
$*6' * ")#1"' ")&' !&'!&' #8' ")&' #%% ++ #'&,+' #8' 1+"#%+' 8 ,+"' I#GD/' '
#@"$ '&(6' '#,' '' .,&$"&,' T1$'"" &+' '' ")&' *)#-&6' '' $'?' #'&' &$,6' HD#HD'
")$'' ")&' ,&+2&!" 4&' T1$'"" &+' #8' +1!)' H##(+' +2&! 8 &(' '' ")&' +$ (' !)&N
(1-&' ' $'(' ")$"' +1!)' H##(+' +)$--' '#' @&' +#' &92#,"&(' '#,' +#' %2#,"&(6'
&9!&2"' 8,#%' ")&' ,&+2&!" 4&' 5-$!&+' +&"' 8#,")' '' ")&' +$ (' !)&(1-&6' $'('
$!!#,('.' "#' ")&' 1-&+' +1@>#' '&(' ")&,&"#' ' X")$"' +' "#' +$?6[

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BBBBBBBB' #,& .'' ,$'(?' B' B' &'' ")#1+$'(' H$--#'+
BBBBBBBB' #,& .'' H&'&4$' B' B' &'' ")#1+$'(' H$--#'+
,#%' ")&' V' "&(' D '.(#%6' #,' 8,#%' $'?' 5-$!&' 8,#%' *) !)'
")&' +$%&' % .)" @&' %2#,"&(' '"#' ")&' V' "&(' D '.(#%6'
8#,' #'+1%2"#'' ")&,&'

BBBBBBBB' 1%6' #8' ")&' (' 5-$'"$"#'+6
9"?' ")#1+$'(' H$--#'+
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H,&&'' &$' ' B' A 4&' ")#1+$'(' 5#1'(+
#8&&' X1'-&++' ")&' 31"&+' #8'
#'+1%2"#'' '' ")&' V' "&('
D '.(#''+)$--')$4&' @&&''")&''
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,#%' ")&' 5#," E' ,

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$+' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,?' +)$--' 8,#%' O&' "#'
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5#,"+' ,&+2&!" 4&-?' >

1@>&!" "#' ")&' 1-&+' 8#--#* '.' X")$" +' "#' +$?6[

IO5DH3' 3 ' XfK[' --' +1!)' H##(+' "#' @&' %2#,"&(' '"#' ' '$'(
HD/32 #= I7DE %@?' +' $>&+"?;+' 1@>&!"+6' $)(' '' (') 2+' #,' <&++&-+' #8' ")&'
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#@$!!#' +' $--#*&(' "#' @&' %2#,"7' $'(' *$,&)#1+&(' * ")#1" 5$?%&'"
#8' 31"?] K 6

@ #D' M P' 1!)' E '&' "#' @&' # %2#,"&(' #'-?' '' $+:+' #,' 5$!:$.&+' !#'N
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")$''),&&' 3#L&'' ,&21"&(' T1$," #""-&+' #,' 9' 3# &'' ,&21"&(' 5 '"
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3/D#43"' .' X0 [' 1!)' ,$'(?' $'(' H&'&4$' '#" "#' @&' #8' .,&$"&,' #,') .)&,' 3&N
.,&&' #8' ",&'.")' ")$'' ")$" #8' '&' "#' '&' #4&,' ?(,#%&"&,' 5,##8]
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@2/D" IED X [' 1!)' H##(+6' *)&'' &92#,"&(' 8 ' ' (' %$?@&' +#'
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*/2ZO2H]E X [' 8' ")&' 31" &+' #8' %2#,"$" #'')$4&' @&&'' 2$ (' '' ")&' V' "&('
D '.(#%' #'' +1!)' H##(+6' $' 81--' 3,$*@$!:' #8' +1!)' 31" &+' +)$--' @&'
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I42/ X [' V2#'' ")&' 92#,"$" #'' 8,#%' ' 8' +1!)' ,&8 '&(' 1.$,6'
I#36 ")&' +$%&' #1'"?' +)$--' @&' $--#*&(' $+' *#1-(' @&' $--#*$@-&' #'' 92#,"N
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&C /3' #G' XI [' V2#'' 92#,"$" #'' 8,#%' ")&' V' "&(' D '.(#%' #8' $'?' +1!)'
#' # 3DG' H##(+' 8,#%' ")&' E$,&)#1+&6' #,' 8#,' 3,$*@$!:6' #,' 8#,' #1'"?6' +#' %1!)'
? #4G O' #8' ")&' #,%' #8' ")&' #'(6' #,' #8' ")&' 3&!-$,$" #'6' #,' #8' $'?' #")&,' 3#!1B'
O2GD' 2CC7 ^ %&'"6' ,&C1 ,&(' '' ")&' $+&' #8' 92#,"$" #'' #8'+1!)' H##(+' .&'&,$--?' "#'
H2O7D #,& .'' 5$,"+6' $+' +' '"&'(&(' "#' 2,&4&'" ")&' -$'('.' #8' ")&' +$%&' ''
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(D/3 . H23D' .' X [' #' 3,$*@$!:' #,' #1'"?' "#' @&' $--#*&(6' '#,' 92#," #'(' !$'N
2#G #4 !&--&(6' 1'" -' $' &," 8 !$"&' #8' ")&' (1&' -$'('.' #8' ")&' H##(+' $" ")&' 5#,"
#8' ' ' @&' 2,#(1!&(' 8,#%' ")&' #--&!"#,' $'(' #'",#--&,' #8' ")&'
1+"#%+' $" ")$" 5#,"]

GE' 72GD#' X [' 8' $'?' H##(+' @&' -$(&'' $" $'?' #,& .'' 5#," #,' 5-$!&6' ")&'
#' A /D 4#' 2&! &+' $'(' T1$'" "?' #8' +1!)' H##(+6' * ")' ")&' $,:+6' 1%@&,+6' $'('
+ /3E 3&'#% '$" #'+' #8' ")&' $+:+' #,' 5$!:$.&+' !#'"$ ' '.' ")&' +$%&6' +)$--'
@&' '(#,+&(' #'' ")&' !&'!&6' $'(' + .'&(' @?' ")&' (' #'+1-' $" ")&'
5#," #8' -$('.6' #,' 8' ")&,&' @&' '#' (' ' #'+1-6' @?' *#' :'#*''
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MK / [V2#' %2#,"$" #' '"# ")&' 5#," ' ' ' #8' $'?' +1!)' HD#HD' "#
H##(+6")&' !&'!&' 8#,' ")&' +$%&' +)$--' @&' (&- 4&,&(' 12' "#' ")&' #-B' OD' GD7 FD/DG'
-&!"#,' #,' #'",#--&,' #8' ")$" 5#," ' K =5A

< ' '(' @&' "81,")&,'&'$!"&(6')$" &4&,?' 22- !$" #' 8#,' !&'!&' CC7 H23 #'
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%$(&' ' E, " ' .6' $'(' (&- 4&,&(6' @&"*&&' ' ")&' 8")' 3$?' #8' ' $'(3 ' OD' GD7 FD/^
'")&' 8")' 3$?' #8'& ' ' &$!)' &$,6' "#' ")&' #--&!"#,' #,' #'",#--&,' #8' DG' 3 ' ' .. HD/E'
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")&' 5&,+#' ' $22-? ' .6' $'(' ")&' 3&+!, 2" #' ' $'(' T1$'" "?' #8' &$!)' V3" B26' 2#G'
," !-&' 8#,' *) !)' +1!)' !&'!&' +' ,&C1 ,&(' ' $'(' $--' +1!)' 22- !$" #'+' V3" , I7F
* ")' +1!)' 5$," !1-$,+' +)$--' @&' &'"&,&(' ' $' ##:' "#' @&' :&2" $" ")&'
1+"#%' #1+&' $" ")&' 5#," #8' ' $'(' "#' @&' ")&,&' #2&' ' 8#,' 21@- !'
'+2&!" #' ' (1, ' .' ")&' #1,+' #8' 1+ '&++' $'(' #' ' ")&' 8")' 3$?' #8'
& ' ' &$!)' &$,' +1!)' ##:' +)$--' @&' !-#+&(' $'(' * ") ' #1,"&&' ' HH I#3' 3 '
3$?+' ")&,&$8"&,' ")&' #--&!"#,' $'(' #'",#--&,' +)$--' %$:&' #1" $'(' + . ' OD' GD7 FD/DG'
$' ",1&' #2?' #8' +1!)' '", &+6' +2&! 8? ' .' ")&' 22- !$'"+' ,&+ (&' $'(3 ' 3"D' ^
")&' 22- !$'"+' '#' ,&+ (&' ' ")&' +$ (' +-&6' $'(' (&- 4&,' #,' ",$'+% FD/# /
+1!)' #2?' "#' ")&' H#4&,'#,' #,' &1"&'$' H#4&,'#,' #8' ")&' +$ (' +-&'
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< ' '(' @&' " 81,")&,' &'$!"&(6')$" * ") ' #1,"&&' 3$?+' $8"&,' FD/# /' 3 '
")&' &!& 2" #8' +1!)' #2?' ")&' H#4&,'#,' #,' &1"&'$' H#4&,'#,' #8' 277 3' Y I2#^
")&' +$ (' +-&' +)$--' $--#" ")&' *)#-&' T1$'" "?' #8' &$!)' ," !-&6' ' ")&' 3 3 DEN
8 ,+" 2-$!&6' $%#' .' ")&' 22- !$'"+' ,&+ (&' ' ")&' +$ (' +-$' (' ' !$+&'
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&+ (&'"+6' ")&' +)$--' $--#" ")&' T1$'" "?' '#' +#' $22- &(' 8#,' $%#' .' ")&'
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>1(.&' %#+" 8$,' $'(' &C1 "$@-&' $'(' +)$--' !$1+&' $' &2#," ")&,&# ' "#' 2#G' /DC /3' 3 '
@&' (,$* ' 12' ' E, " ' .6' $'(' + . ' $'(' ",$'+% " ")&' +$%&' "#' ")&' #,(+' /D2E I /6' 2#G'
#%% ++ #'&,+' #8' +' $>&+"?;+' ,&$+1,?' #8' ")&' V ' "&(' D ' .(#%' #8' (O O EE #^
' (' $'(' ' $'(' +)$--' !$1+&' $' 312- !$"&' #8' +1!)' D/E' .' (I E^
&2#," +#' + . '&(' "#' @&' " ,$'+% ""&(' "#' ")&' #%% ++ #'&,+' #8' 1+"#%+ 3 O E

< ' '(' @&' "81,")&,' &'$!"&(6')$" 12#' ' &!& 2" #8' +1!)' 31B' (O O EE #'
2- !$"&' &2#," ")&' #%% ++ #'&,+' #8' 1+"#%+' +)$--' .,$'" !&'!&+6' D/E' .' IE^
"#' !#'" '1&' ' 8#,!&' 8#,' $'?' 5&, #(' 1'" -' ")&' 8")' 3$?' '& ' ")&' ' 7,$!&,$!A7
'&9" &'+1 ' .6' 8#,' ")&' %2#,"$" #' ' '"#' ")&' ' ' ' #8' ")&' T1$'B' !#,('.A'#A7'
" " &+' #8' +1!)' H##(+' $+' $,&' $--# * &(' @?' $*' "#' @&' +#' %2#,"&(6' * ")' =DC /3' #8'
")&,' !&'!&6' $!!#,(' .' "#' ")&' --#"%&'"+' ' +1!)' &2#,"6' $'(' FD/# /!'
(4 (' .' ")&' *)#-&' 5#," #' $--#""&(' "#' $'?' #'&' 22- !$'" '"#' +&4&,$-'
!&'!&+6' $+' ")&?' +)$--' @&' (&+ ,&(' $'(' +&&' 8 "' $'(' +1!)' !&'!&+' +)$--
@&' ",$'+% ""&(' * ")#1" 3&-$?' "#' ")&' #--&!"#,' $'(' #'",#--&,' #8'
' ' "#' @&' @?' ")&%' (&- 4&,&(' "#' ")&' (88&,&' ' 22- !$'"+6' $8"&,'
"$: ' .' #'(' 8#,' ")&' +$%&' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"

< ' '(' @&' "81,")&,' &'$!"&(')$" 2,&4 #1+' "#' ")&' 3&- 4&,?' #8' D. /D' * D
$'?' +1!)' !&'!&+' "#' ")&' 5&,+#'+' "#' *)#%' ")&?' $,&' .,$'"&(6' ")&' 7 FD/6' .' '
#--&!"#,' $'(' #'",#--&,' #8' ' ' +)$--' "$:&' ")&' #'(' #8' +1!)'
5&,+#'+' "#' +' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' * ")' +188 ! &'" X' W^A
&!1, "?6' 8#,' ")&' %2#,"$" #' #8' ")&' ," !-&+' 8#,' *) !)' ")&' +$ ('
!&'!&+' $,&' ,&+2&!" 4&-?' .,$'"&(' #' #,' @&8#,&' ")&' 8")' 3$?' #8
& ' +1!!&&(' '.' ")&' 3&- 4&,?' #8' +1!)' !&'!&+6' * ")' +1!)' #'(" #'+6
I' T' $'(

$'(' 8#,'")&' #,8& "1,&' #8' +1!)B' 1%+6' '#"' &9!&&('.' ")&' *)#-&'
%#1'" #8' 31" &+' 2$?$@-&B '' '('#'' ," !-&+' + % -$,' "#'
")#+&' +2&! 8 &(' '' +1!)' !&'!&+6' $+' ")&' #%% ++ #'&,+' #8' 1+"#%+'
!&'!&'#' +)$--' ") ' :' 8 "] 5,#4 (&(' $-*$?+6' ")$"' 8' $'?' 5&,+#'' "#' *)#%' +1!)'
32]D# IC' 026' !&'!&' +)$--' @&' .,$'"&(' +)$--' '#"')$4&' . 4&'' +1!)' #'(' 2, #,' "#'
8&<&(@ H#8 ")&' 8")' 3$?' #8' & ' '&9"' $8"&,' ")&' .,$'" '.' +1!)' !&'!&6' "'
4 ,'#,' 7 -$*81-' 8#,'")&' H#4&,'#,' #,' &1"&'$'" H#4&,'#,' #8' ")&' +$ (
+-&6' 8')&' +)$--' +&&' 8 "6' "#' ",$'+8&,' $'?' +1!)' !&'!&' "#' $'?'#")&,'
5&,+#'' *)#' +)$--' @&' (&+ ,#1+' "#' "$:&' 12' ")&' +$%&6' $'(' * -- '.' $'('
$@-&' "#' . 4&' +1!)' #'(' ' $'(' +1!)' ,$'+8&,' +)$--' @&' '#" 8 &(' @?' 'N
(#,+&%&'" #'' ")&' !&'!&' + .'&(' @?' +1!)' H#4&,'#,' #,' &1"&'$'"
H#4&,'#,

(I#3D/.D 3' ' '(' @&' "' 81,")&,' &'$!"&(')$"' 8' $'?' 5&,+#'' #,' 5&,+#'+'
#4' /' .27E .6' .)$--' !#1'"&,8& "' #,' 8$-+ 8?' $'?' !&'!&' #,' #")&,' 3#!1%&'" ,&C1 ,&('
5&'7" +##' %2#,"$" #'' '"#' ")&' ' ' '#8' $'?' H##(+' *) !)' *#1-(
' #")&,* +&' @&' 2,#) @ "&(' "#' @&' %2#,"&(' '"#' ")&' +$ (' +-&6' #,' +)$--'
:'#* '.-?' #,' * -81--?' %$:&' 1+&' #8' $'?' +1!)' !&'!&' #,' #")&,'
3#!1%&'" +#' !#1'"&,8& "&(' #,' 8$-+ 8 &(6' +1!)' 5&,+#'' #,' 5&,+#'+'
+)$--' 8#,' &4&,?' +1!)' 88&'!&' 8#,8& "' ")&' 1%' #8' 4&')1'(,&('
5#1'(+

HD#HD' ' '(' @&' "' 81,")&,' &'$!"&(')$"' "' +)$--' '#"' @&' -$*81-' B"#' ,&N
GE' # 3' &92#,"' 8,#%' ")&' ' ' ' $'?' H##(+' *) !)')$4&' @&&'' %2#,"&('
3 ' OD' /D D&^ '"#' ")&' +$ (' +-&' * ")' !&'!&' #8' ")&' #%% ++ #'&,+' #8' 1+"#%+' $+'
C /3DG' N' # /' $8#,&+$ (' $'(")$"' "' +)$--' '#"' @&' -$*81-' "#' !$,,?' $'?' +1!)' H##(+'
H2// DG' (2E3^ #$+"* +&' 8,#%' #'&' 5$,"' #8' ")&' +$ (' +-&' "#' $'#")&,6' &9!&2"' ''
Z ED!' I#7DEE' <&++&-+' #8' 8"?' #'+' 1,")&'' $"' ")&' -&$+"6' $'(' '' ")&' +$%&' 5$!:$.&+'
#' DEED7E' .' '' *) !)' +1!)' H##(+' *&,&' %2#,"&(' '"#' ")&' +$ (' +-&' ' $'(")$"' "'
A .36' #E +)$--' '#"' @&' -$*81-' "#' ,&%#4&' $'?' E '&' 8,#%' #'&' 5$,"' #8' ")&' +$ (' +-&'
@ #D' /D^ "#' $'#")&,6' @?' $'(' &9!&2"' '' +1!)' 5$!:$.&+' #,' '' #""-&+
0 FDG' #^
72#G!' H

A /D 4#' ' '(' @&' "' 81,")&,' &'$!"&(')$"' "' +)$--' '#"' @&' -$*81-' "#' &92#,"
GE' # 3' 3 ' 8,#%' ")&' ' ' '"#' $'?' 5$,"' #8' ")&' V' "&(' D '.(#%' $'?' H##(+'
"#V%'&(77 *) !)' $,&' #8' ")&' H,#*")6' 5,#(1!&6' #,' $'18$!"1,&' #8' $'?' #,& .''
' ? #4G 7 0 #1'",?

GE' 0^ ' '(' @&' "' 81,")&,' &'$!"&(')$"' 8' $'?' H##(+' +)$--' @&' %N
C /3DG' /' D&^ 2#,"&(' '"#' #,' &92#,"&(' 8,#%' ")&' ' ' ' #,' !$,, &(' #$+"* +&'
C /3DG!' H' 8,#%' #'&' 5$,"' #8' ")&' +$ (' +-&' "#' $'#")&,' 5$,"' #8' ")&' +$%&6' #,' +)$--'
H #3/2/6' 3 ' @&' *$"&,@#,'&6' #,' @,#1.)' "#' $'?' E)$,8' #,' #")&,' 5-$!&' * ")' '"&'"
2Z!' . /^ "#' @&' *$"&,@#,'&6' "#' @&' +#' &92#,"&(' #,' !$,, &(6' #,' +)$--' @&' ,&%#4&('
.D 3DG!' H @?' $'(' * ") '' ")&' +$ (' +-&6' !#'",$,?' "#' $'?' #8' ")&' 3 ,&!" #'+' #,'
A /.D 3 I /D' .' 5,#4 + #'+' #8' ") +' !"6' ")&' +$%&' $'(' ")&' 5$!:$.&+' !#'"$ '.' ")&'
DEED7E!' H +$%&' +)$--' @&' 8#,8& "&(' "#'.&")&,' * ")' $--') 2+6' <&++&-+6' #,' #$"+6' $'('
+D#2736 $--' $""-&' $'(' $,, $.&+' 1+&(' #,' &%2-#?&(' ")&,& ' ' $'(' &4&,?' 5&,+#''
#88&'('.' ")&,& '' +)$--' 8#,8& "' 8#,' &4&,?' +1!)' 88&'!&' ")&' 1%' #8' '&'
)1'(,&(' 5#1'(+6' #,' ")&' 81--' %#1'" #8' $--' 31" &+' *) !)' *#1-(' @&'
2$?$@-&' '' ,&+2&!"' #8' +1!)' #,' + % -$,' H##(+' 8#,' #%&' #'+1%2" #''
#8' ")&' +$%&' '' ")&' V' "&(' D '.(#%6' $"' ")&' -&!" #'' #8' ")&' #%% +N
+ #'&,+' #8' 1+"#%+

GE' C/ ' ' '(' @&' "' 81,")&,' &'$!"&(')$"' ")&' +&4&,$-' #,"+' #8' H##(+
" O 3DG' 3 ' OD' &'1%&,$"&(' #,' (&+!, @&(' '' ")&' !)&(1-&' @&,& 'B$8"&,' !#'"$ '&(6
'
GD# 0 #23DG

% ' $ B ' ' (2C TU

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")&' ' ' '-' X")$'' +' "#' +$?6[' B 2#!

3V ' ' 5

H##(+6' ")&' 5,#(1!&' #,' $'18$!"1,&' #8' 5-$!&+' * ") '' ")&' % "+' #8'
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#""#'' $,'6' #""#'' -#")6' '&'' -#")6' H-$++' $'18$!"1,&+6
E##--&'' $'18$!"1,&+6' 1'-&++' " ' ' -$(&'' '' $'(' %2#,"&('
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2 , "+' #8' .,&$"&,' ",&'.")' ")$'' '&' "#' '&' #4&,' ?(,#%&"&,'
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Ů "@&' ,#*'' #,' $'?' #")&,' H#4&,'%&''6' @&+ (&+' ")&' --#*$'!&' #8'
Ů 6' $' 3$?' '#*' !-$%&(6' &9!&2" %?' $-8' 5$?' $+' $
Ů h#8' ")&' ,%?' #,' $4?' #,' $, '&+66' #,' #8' $' 5,#4 + #'$-' $""$- #''
' 8#,%&(' 8,#%' ")&' V "$6' ' ' ' * ' " H' $'(' &9!&2" %?' 5$?'
Ů $'(' --#*$'!&+' 8,#%' ")&' "#' ")&' @#")
Ů 3$?+' '!-1+ 4&6' (1, ' .' *) !)' 5&, #(' ")&' - " $
Ů *$+' $++&%@-&(' 8@'' ,$ ' ' .' $'(' 9&,! +&' #')&-2' %&' H 3 ;

E) !)' $")6' +#' "$:&'' $'(' +1@+!, @&(6' +)$--' @&' 2,#(1!&(' "#' ")&' 5$?N %$+"&,' H&'&,$-' #8' +' $>&+"?;+' #,!&+' @?' ")&' 5$?%$+"&,6' 1,.&#'6' #,' T1$,"&,%$+"&,' !-$% ' .' ")&' --#*$'!&'] 5,#4 (&(' $-*$?+6' ")$"' $'?' 5$?%$+"&,6' 1,.&#'6' #,' T1$,"&,%$+"&,' ,&!& 4 ' .' +1!)' --#*$'!&6' $'(' @&' ' .' #'' 8$4$' #,' - "$,?' $-8' 5$?6' #,' &' " "-&(' "#' $'?' --#*$'!&' $+')$4 ' .' +&,4&(' '' $'?' #8' +' $>&+"?;+' &.1-$,' #,!&+6' #,' $4?' #,' $, '&+6' +)$--6' '#"* ")+"$'(' .' +1!)' - " $' --#*$'!&6' @&' &' " "-&(' "#' ,&!& 4&' +1!)' $-8' 5$?' #,' --#*$'!&

' I3 .D#E #' 3 '=DGIHDG' /2D/E' # 3; ' @& /DHD FDG' Z" D'ED/F #4'

' '(' *)&,&$+' !&,"$ '' #,2#,$-+' $'(' 3,1%%&,+' #8' ")&' - " $' #8' ")&' V ' "&(' D '.(#%' #8' ' (' $'(' ' *&,&6' '' 21,B' +1$'!&' #8' "@&' 5,#4 + #'+' #8' $'' !'' 2$++&(' '' ")&' & '")' &$,' #8' ")&' # .'' #8' +' $>&+"? D '.' ' ")&' #1,")6' +",1!:' #88' ")&' +"$@- +)%&''' #8' ")&' 3 +&%@#(&(' "$ ' $> (' 2-$!&(' #'' ")&' 1"B' 5&'+ #'' #8' 4&B2&'!&' $' 3$?6' $-")#1.)' '#'' 1'8 '' 8#,' 81,")&,' &,4 !&' @&' '' 81,")&,' &'$!"&(')$'' '#' #,2#,$-' #,' 3,1%%&,' +#' 2-$!&(' #'' ")&' 5&'+ #'' #8' 4&B2&'!&' ' ' *' +)$--' @&' &' " "-&(' "#' ,&!& 4&' ")&' +$ (' 5&'+ #'' 8#,' $'?' 5&, #(' (1, ' .' *) !)')&' +)$--' @&' ,&!& 4 ' .' 5$?' '' ")&' - " $

IO273D/#E!' B 23DE!' H' 3 '233D#G' 3OD' &D/H ED!' H

' '(' @&' '' 81,")&,' &'$!"&(')$'' &4&,? 5$?%$+"&,6' 1,.& '6' T1$,"&,%$+"&,6' #'' ")&' ,&(1!&(' --#*$'!&6' $)(' &4&,? 1@$-"&,'' 88 !&,6' 1,.&#';+' $"&6' $'(' ++ +"$''' 1,.&#'' #8' ")&' - " $6' *)#' +)$--' @&' &' " "-&(' #,' !-$%6' "#' @&' &' " "-&(' "#' $'?' --#*$'!&+' $+' $8#,&N +$ (6' +)$--' ,&.1-$,-? $""&'(' ")&' 9&,! +&' $'(' ,$ ' ' .' #8' ")&' &. N %&''6' $""$- #'6' #,' #,2+' "#' *) !)')&' @&-#' .+' (1, ' .' ")&' *)#-&' #8' ")&' %&' '' +)$--' @&' $++&%@-&(' 8#,' ")$'' 51,2#+&6' $'(' +)$--' (1, ' .' ")&' +$ (' %&' 21'!"1$--? (#' $'(' 2&,8#,%') +' 31"?' $+' $' 5$?%$+"&,6' 1,N .&#'6' T1$,"&,%$+"&,6' 1@$-"&,'' 88 !&,6' 1,.&#';+' $"&6' #,' ++ +"$''' 1,.&#'' #8' +1!)' &. %&''6' $""$- #'6' #,' #,2+6' #'' 2$ '' #8' 8#,8& " ' .' ")&' +$ (' --#*$'!&6' $+' *&--' $+' $--' ,,&$,+' #8' ")&' +$ (' --#*$'!&' $'(' #8' 5$?' $'(' $' &," 8 !$"&' #8') +')$4 ' .' +#' $""&'(&(' $'(' 2&,8#,%&(') +' 31"?6' + .'&(' @?' ")&' #%%$'(' .' 88 !&,' #8' ")&' &. %&''6' $"N "$- #'6' #,' #,2+' "#' *) !)')&' %$?' @&-#' .6' +)$--' @&' ",$'+%$ "&(' "#' ")&' 5$?%$+"&,' H&'&,$-' @?' ")&' 88 !&,' !-$% ' .' ")&' --#*$'!&'] 5,#4 (&(' $-*$?+6' ")$'' '' !$+&' $'?' +1!)' 5$?%$+"&,6' 1,.&#'6' T1$,"&,%$+"&,6' 1@$-"&,'' 88 !&,6' 1,.&#';+' $"&6' #,' ++ +"$''' 1,.&#'6' !-$% ' .' "#' @&' &' " "-&(' "#' +1!)' --#*$'!&6' +)$--' @?') +' #%%$'(' .' 88 !&,' @&' 2&,% ""&(' #,' +188&,&(6' 8#,' $'?' +2&! $-' $1+&' #,' 1'$4# ($@-&' &!&++ "?6' "#' @&' $@+&''' (1, ' .' ")&' E)#-&' #,' $'?' 5$,"' #8' +1!)' 9&,! +&6' 8#,' *) !)' 51,2#+&' '' +)$--' @&' -$*81-' 8#,' +1!)' #%%$'(' .' 88 !&,' "#' .,$''' +1!)' &$4&' #8' @+&'!&66' ")&' $'(' '' +1!)' $+&' '' +)$--' @&' -$*N 81-' 8#,' +1!)' 5$?%$+"&,6' 1,.&#'6' T1$,"&,%$+"&,6' 1@$-"&,'' 88 !&,6' 1".&#';+' $"&6' #,' ++ +"$''' 1,.&#'6' *)#' %$?' @&' +#' 2&,% ""&(' "#' @&' $@+&'6' $'(')$4&' +1!)' &$4&' '' E, " '.6' "#' (&%$'(' $'(' ,&!& 4&

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")&ʼ +$ (ʼ --#*$'!&ʼ $'(ʼ &4&,?ʼ 5$,"ʼ ")&,&#8ʼ 'ʼ - :&ʼ $''&,ʼ$+ʼ 8ʼ)&
)$(ʼ $""&'(&(ʼ(1, '.ʼ")&ʼ *)#-&ʼ#8ʼ")&ʼ +$ (ʼ 9&,! +&] 5,#4 (&(ʼ$-*$?+6ʼ
")$"ʼ ")&ʼ &$+#'ʼ 8#,ʼ +1!)ʼ @+&'!&6ʼ $+ʼ *&--ʼ $+ʼ ")&ʼ 31,$"#'6ʼ")&,&#86ʼ
+)$--ʼ @&ʼ !$,&81--?ʼ $'(ʼ ",1-?ʼ +2&! 8&(ʼ 'ʼ $ʼ &," 8 !$"&ʼ X 'ʼ - &1ʼ #8ʼ ")$"ʼ
@&8#,&ʼ %&'" #'&([6ʼ"#ʼ @&ʼ+ .'&(ʼ@?ʼ")&ʼ #%%$'('.ʼ 88 !&,6ʼ $'(ʼ"#ʼ @&ʼ
81,' +)&(ʼ $+ʼ +##'ʼ $+ʼ !#'4&' &'"-?ʼ %$?ʼ @&ʼ "#ʼ ")&ʼ 5$?%$+"&,ʼ H&'&,$-

ʼ 5,#4 (&(ʼ $-*$?+6ʼ $'(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(ʼ)$"ʼ 'ʼ !$+&ʼ .ʼ3"Dʼ ?D4 ʼ
$'?ʼ &. %&'"6ʼ $""$- #'6ʼ #,ʼ #,2+ʼ #8ʼ - "$ʼ +)$--ʼ '#"6ʼ @&8#,&ʼ ")&ʼ # D#3ʼ ODʼ # 3ʼ
%&ʼ 8 9&(ʼ 8#,ʼ ")&ʼ 5$?%&'"ʼ #8ʼ ")&ʼ +$ (ʼ --#*$'!&+6ʼ @&ʼ !$--&(ʼ #1"ʼ H277DGʼ I3ʼ OD^
8#,ʼ ")&ʼ 9&,! +&ʼ $'(ʼ ,$ ' '.ʼ ")&,&#86ʼ &4&,?ʼ 5$?%$+"&,6ʼ 1,.&#'6ʼ . /Dʼ3"Dʼ ODʼ
T1$,"&,%$+"&,6ʼ 1@$-"&,'ʼ 88 !&,6ʼ 1,.&#';+ʼ $"&6ʼ $'(ʼ ++ +"$'"ʼ . &DGʼ . /ʼ3"Dʼ
1,.&#'ʼ @&-#'. '.ʼ "#ʼ $'?ʼ +1!)ʼ &. %&'"6ʼ $""$- #'6ʼ #,ʼ # 2+6ʼ $'(ʼ +26 0 D#3!ʼ 3"Dʼ
!#% '.ʼ *") 'ʼ ")&ʼ $8#,&+$ (ʼ &'&8 "+ʼ #8ʼ ") +ʼ !"6ʼ *)#ʼ +)$--ʼ)$4&ʼ 77 Z2#HDʼ
"$:&'ʼ $'(ʼ +1@+!, @&(ʼ ")&ʼ $")ʼ)&,& 'B@&8#,&ʼ %&'" #'&(ʼ @&8#,&ʼ $'?ʼ E"27ʼ ODʼC2 G!ʼ
R1+" !&ʼ #8ʼ ")&ʼ 5&$!&ʼ $+ʼ $8#,&+$ (6ʼ +)$--ʼ @&ʼ &'" "-&(ʼ"#ʼ ")&ʼ +$ (ʼ --#*N #ʼ 32] #4ʼ 3"Dʼ
$'!&ʼ $+ʼ 8ʼ)&ʼ)$(ʼ ,&.1-$,-?ʼ $""&'(&(ʼ ")&ʼ 9&,! +&ʼ $'(ʼ ,$ ' '.ʼ #8ʼ ' 23"!Z 3" I3ʼ
+1!)ʼ &. %&'"6ʼ $""$- #'6ʼ #,2+ʼ (1, '.ʼ ")&ʼ *)#-&ʼ #8ʼ ")&ʼ %&ʼ (D/3 . H23Dʼ .ʼ
@?ʼ $*ʼ $22# '"&(ʼ 8#,ʼ ")$"ʼ 51,2#+&6ʼ $'(ʼ $+ʼ 8ʼ $ʼ &," 8 !$"&ʼ #8ʼ +1!)ʼ 33D#G2#HD!
""&'($'!&6ʼ + .'&(ʼ @?ʼ ")&ʼ #%%$'('.ʼ 88 !&,ʼ #8ʼ ")&ʼ &. %&'"6
$""$- #'6ʼ #,2+6ʼ)$(ʼ @&&'ʼ 81,' +)&(

<ʼ '(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(ʼ)$"ʼ 12#'ʼ +1!)ʼ $")+ʼ $'(ʼ 77 Z2#HDEʼ
&," 8 !$"&+ʼ $+ʼ $8#,&+$ (6ʼ #,ʼ *)&,&ʼ $'?ʼ &. %&'"ʼ #8ʼ - "$ʼ +)$--ʼ '#"ʼ "#ʼ ODʼ 2$ (
'$4&ʼ @&&'ʼ !$--&(ʼ #1"ʼ "#ʼ ")&,ʼ 9&,! +&ʼ $+ʼ $8#,&+$ (6ʼ 12#'ʼ ")&ʼ +$ (ʼ \ I2/3D/76ʼ
$")+ʼ @& '.ʼ 2,#(1!&(ʼ "#ʼ ")&ʼ 5$?%$+"&,ʼ H&'&,$-6ʼ "ʼ +)$--ʼ @&ʼ -$*81-
8#,ʼ ")&ʼ 5$?%$+"&,ʼ H&'&,$-6ʼ $'()&ʼ +ʼ)&,&@?ʼ $1")#, L&(ʼ $'(ʼ ,&C1 ,&(6ʼ
"#ʼ 2$?ʼ "#ʼ ")&ʼ +$ (ʼ 5$?%$+"&,+6ʼ 1,.&#'+6ʼ T1$,"&,%$+"&,+6ʼ 1@$-"&,'ʼ
88 !&,+6ʼ 1,.&#'+ʼ $"&+6ʼ $'(ʼ ++ +"$'"ʼ 1,.&#'+ʼ ")&,ʼ ,&+2&!" 4&ʼ
--#*$'!&+ʼ $@#4&ʼ %&'" #'&(6ʼ 8#,ʼ ")&ʼ 1+1$-ʼ C1$,"&,-?ʼ #,ʼ #")&,ʼ 2,#2&,ʼ
5&, #(+6ʼ *")#1"ʼ $'?ʼ 3&(1!" #'ʼ *)$"+#&4&,6ʼ ")&ʼ $")+ʼ $'(ʼ &," 8 N
!$"&+ʼ @&8#,&ʼ %&'" #'&(ʼ "#ʼ @&ʼ @?ʼ)%ʼ 2,&+&,4&(ʼ $'(ʼ 2,#(1!&(ʼ $+ʼ
<#1!)&,+ʼ 8#,ʼ ")&ʼ 5$?%&'"+

<ʼ '(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(ʼ)$"ʼ ")&ʼ 5$?%$+"&,+6ʼ 1,.&#'+6ʼ '#ʼ) D47DH3ʼ
T1$,"&,%$+"&,+6ʼ 1@$-"&,'ʼ 88 !&,+6ʼ 1,.&#'+ʼ $"&+6ʼ $'(ʼ ++ +"$'"ʼ . 33D#G ʼ
1,.&#'+ʼ #8ʼ - "$6ʼ &'" "-&(ʼ #,ʼ !-$ % '.ʼ "#ʼ @&ʼ &'" "-&(ʼ "#ʼ ")&ʼ
$8#,&+$ (ʼ ,&(1!&(ʼ #,ʼ (+&%%@#(&(ʼ --#*$'!&+6ʼ +)$--ʼ $"ʼ $--ʼ %&+ʼ @&
- $@-&ʼ "#ʼ +&,4&ʼ 'ʼ ")&ʼ ,&+2&!" 4&ʼ &. %&'"+6ʼ $""$- #'+6ʼ #,2+ʼ "#ʼ "-&,ʼ!-$%"#
*) !)ʼ ")&?ʼ @&-#' .ʼ *)&'&4&,ʼ ")&ʼ +$%&ʼ +)$--ʼ @&ʼ &%@#(&(ʼ $'(ʼ !$--&(ʼ 3OD 77 Z ʼ
#1"ʼ 12#'ʼ $!" 4&ʼ &,4 !&ʼ $'(ʼ 'ʼ !$+&ʼ #8ʼ &.-&!"#,ʼ &81+$-ʼ "#ʼ $""&'(ʼ
*)&'ʼ !$--&(ʼ 12#'6ʼ #'ʼ +1!)ʼ !!$+ #'ʼ #,ʼ #'ʼ +1!)ʼ #")&,ʼ !!$+ #'+ʼ $+
%$?ʼ @&ʼ ,&C1 ,&(ʼ 'ʼ 21,+1$'!&ʼ #8ʼ ")&ʼ $*+ʼ 'ʼ 8#,!&ʼ ,&+2&!" '.ʼ ")&ʼ
- "$ʼ *)&'ʼ (+&%%@#(&(6ʼ &$!)ʼ $'(ʼ &4&,?ʼ +1!)ʼ 5$?%$+"&,6ʼ 1,.&#'6ʼ
T1$,"&,%$+"&,6ʼ 1@$-"&,'ʼ 88 !&,6ʼ 1,.&#';+ʼ $"&6ʼ $'(ʼ ++ +"$'"ʼ 1,N
.&#'ʼ+)$--6ʼ #'ʼ+1!)ʼ &.-&!"#,ʼ &81+$-ʼ @&ʼ '.!&,"8 &(ʼ "#ʼ")&ʼ &!,&"$,?
$"ʼ E$,6ʼ $'(6ʼ 'ʼ ,&+2&!"ʼ #8ʼ ")&ʼ - "$ʼ #8ʼ (ʼ "#ʼ ")&ʼ #,(
&1"&'$'"ʼ #8ʼ ")&ʼ #1'"?6ʼ @?ʼ ")&ʼ #-#'&-ʼ #,ʼ #")&,ʼ #%%$'($'"ʼ #8
")&ʼ &. %&'"6ʼ $""$- #'ʼ #,2+ʼ "#ʼ *) !)ʼ +1!)ʼ 5$?%$+"&,6ʼ 1,.&#'6
T1$,"&,%$+"&,6ʼ 1@$-"&,'6ʼ 1,.&#';+ʼ $"&6ʼ #,ʼ ++ +"$'"ʼ 1,.&#'ʼ+)$--ʼ
@&-#'.6ʼ 8#,8&ʼ ")ʼ +ʼ -$%ʼ "#ʼ")&ʼ +$ (ʼ --#*$'!&ʼ $'(ʼ &4&,?ʼ 5$,"ʼ")&,&#86ʼ
$+ʼ +)$--ʼ $-+#ʼ @&ʼ !#'+ (&,&(ʼ $'(ʼ ,&.$,(&(ʼ $+ʼ $'ʼ $!"ʼ #8ʼ (&+&,"#'ʼ $'(ʼ %N
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77 Z2#HD' # 3' 3 ' OD' C2 G' Z " 7D' 3"D' B 7 3 2' E' D# O G DG

< ' '(' @&' " 81,")&,' &'$!"&(')$" '#") '.]' '' ") +' !" !#'N "$ '&(' +)$--' &9"&'(' #,' @&' !#'+",1&(' "#' &9"&'(' "#' &'" "-&' $'?' 5$?N %$+"&,6' 1,.&#'6' T1$,"&,%$+"&,6' 1@$-"&,'' 88 !&,6' 1,.&#';+' $"&6' #,' ++ +"$'" 1,.&#'' $+' $8#,&+$ (6' "#' ")&' +$ (' --#*$'!&6' #,' $'?' 5$," ")&,&#86' (1, '.' ")&' %&' ")&' -"$' "#' *) !)')&' @&-#'.+' +)$--' @&' &%@#(&(' #,' $++&%@-&(' 8#,' ,$ ' '.'$'(' 9&,! +&

+D/E #E' # > 27.'+26!' /' D#3 37DG' 3 ' 77 Z2#HD' 2E' "2F #4' ED/FDG' #' 3"D' /06' /') 2F6!' D0^ C ZD/DG' 3 ' /DHD FD' +26!' H' GI / #4' /2 # #4

< ' 5,#4 (&(' $-*$?+6' $'(' @&' " 81,")&,' &'$!"&(6')$" $'?' 5&,+#'' @& '.' #'' 4-' #,' -"$,?' $-8' 5$?6' #,' @& '.' &'" "-&(' "#' $'?' --#*$'!&' $+')$4 '.' +&,4&(' '' $'?' #8' +' $>&+"?;+' #,!&+' #,' $4?' #,' $, '&+6' $'(' +&,4 '.' '' ")&' -"$6' +)$--' $'(' %$?' $'(')&' +')&,&@?' &%2#*&,&(' "#' ,&!& 4&' $'(' "$:&' ")&' 5 7' $'(' --#*$'!&+' @?' ") +' !" (,&!"&(' "#' @&' 2$ (' "#' ")&' &-(' 88 !&,+6' $2"$ '+6' &1"&'$'"+6' '+ .'+6' (>1"$'"+6' T1$,"&,%$+"&,+6' 1,.&#'+6' 1,.&#'+' $"&+6' $'(' ++ +"$'" 1,.&#'+6' *)&'' $++&%@-&(' 8#,' $''1$-' ,$ ' '.' $'(' ")&' ,&!& 4 '.' $'(' "$: '.' $'?' +1!)' 5$?' $'(' --#*$'!&+' @?' $'?' +1!)' &-(' 88 !&,6' $2"$ '6' &1"&'$'"6' '+ .'6' !71"$'"6' T1$,"&,N %$+"&,6' 1,.&#'6' 1,.&#';+' $"&6' #,' ++ +"$'" 1,.&#'' +)$--' '#" 2,&4&'" +1!)' 5&,+#'' #'' $-8' 5$?6' ;' @& '.' &'" "-&(' "#' $'?' +1!)' --#*$'!&6' 8,#%' ,&!& 4 '.')+' $-8' 5$?' ;' +1!)' --#*$'!&'] 5,#N 4 (&(' $-*$?+6' ")$" +1!)' 5&,+#'' +)$--6' '' ")&' $")' "#' @&' "$:&'' 8#,' ")&' &!& 2" #8' ")&' $-8' 5$?' #,' +1!)' --#*$'!&6' (&!-$,&' ")$")&')$+' ,&!& 4&(' #,' +' &'" "-&(' "#' +1!)' -"$' $?' $'(' --#*$'!&+6' $'(' +)$--' +2&! 8?' ")&' -"$' $':' *) !)' &'" "-&+') %' "#' ")&' +$%&O

G5 I 32#3E!' H ') # ' H O O EE #^ DG' '.. HD/E' /' +/ F23DE!' # 3' 3 ' 7 ED' 3"D /' = 4"3' 3 ' ("D7ED2' +D#^ E #E!' H

< ' 5,#4 (&(' $-*$?+6' $'(' @&' " 81,")&,' &'$!"&(')$" '#' (>1"$'"6' T1$,"&,%$+"&,6' #'B!#%% ++ #'&(' 88 !&,6' 3,1%%&,6' #,' 5, 4$"&' $'' '' ")&' &.1-$,' -"$6' &'" "-&(' "#' ,&!& 4&' $'?' ' #,' O * *' 5&'+ #'' #,' --#*$'!&' #'' $!!#1'" #8' &,4 !&' '' ")&' &.1-$,' ,%?6' +)$--' 8#,8&' " #,' -#+&')+' .)" "#' ")&' +$%&' @?' ,&$+#'' #8')+' +&,4 '.' $'(' ,&!& 4 '.' 5$?' '' ")&' &.1-$,' -"$' '#,' +)$--' $'?' T1$,"&,%$+"&,6' 1@$-"&,'6' 1,.&#';+' $"&6' #,' ++ +"$'" 1,.&#'' 8#,8&' " #,' -#+&')+' .)" "#' ,&!& 4&' $'?' +1!)' ' #,' O * ' 5&'+ #'' #,' --#*$'!&' @?' ,&$+#'' #8')+' ,&!& 4 '.' ")&' --#*$'!&' @?' ") +' !" .,$'"&(' "#') %' *)&'' (+&%@#(&(

' '(' @&' " 81,")&,' &'$!"&(6')$" ")&,&' +)$--' @&' .,$'"&(' 8#,

77 Z2#HD' 3 ' OD' O2GD' . /' BDG H #DE

&$!)' &. %&'" #8' &.1-$,' -"$6' *)&'' (+&%@#(&(6' $' 1%' #8' #'&?' $8"&,' ")&' $"&' #8' $'(' &4&,?' '&')1'(,&(' &'' #8' &$!)' +1!)' &. %&'"6' 8#,' ")&' 92&'!&' #8' '&!&++$,?' &(! '&+' 8#,' ")&' +!:' #'B!#%% ++ #'&(' 88 !&,+6' 3,1%%&,+6' 8&,+6' $'(' 5, 4$"&' &'' #8' +1!)' &. %&'"6' (1, '.' ")&' 5&, #(' #,' 5&, #(+' #8' ++&%@-?' 8#,' 9&,! +&' #,' ,$ ' '.' $'(' $-+#' $'' --#*$'!&' #8' *#B2&'!&' E&&:' 8#,' &$!)' #8' ")&' #'B!#%% ++ #'&(' 88 !&,+' $'(' 3,1%%&,+' #8' &$!)' &. %&'" #'' ")&' 3 +&%@#(&(' "$88' $" &$(' T1$,"&,+6' 8#,' ")&' 92&'!&' #8' '&!&++$,?' &(! '&+' $'(' ""&'($'!&' . 4&'' "#' ")&' +$ (' #'B!#%% ++ #'&(' 88 !&,+' $'(' 3,1%%&,+' *) -&' +1!)' &. %&'" +' '#" !$--&(' #1" 8#,' ,$ ' '.' $'(' 9&,! +&

G5 I 32#3E' 2C^ C #3DG' OD^ . /D' ' * DH ' Q ' D#3 37DG' 3 ' /DHD FD

' '(' @&' " 81,")&,' &'$!"&(6')$" &4&,?' (>1"$'" #8' &.1-$,' -"$' $22#'"&(' $+' +1!)' @&8#,&' ")&' *&'"?B8#1,")' 3$?' #8' ' *" ' '&' ")#1+$'(' & .)")1'(,&(' $'(' 8#1,"&&'6' *)#' +)$--')$4&' +&,4&(' 8$ ")81--?6' &")&,' '' +' $>&+"?;+' &.1-$,' #,!&+6' #,' '' ")&' &.1-$, #,

#,' #!$-' -"$6' 8#,' ")&' 81--' &,%' #8' *&'"?' &$,+' '' ")&' *)#-&6
M*)&,&#8' &''+)$--')$4&' @&&'' '' &,4 !&' $+' $'' (>1"$''' #8' &.1-$,'
-"$6' $'(' *)#' +)$--' @&' @?' .&' #,' '8 ,%"?' ,&'(&,&(' 1'8'' 8#,'
81,")&,' &,4 !&6' +)$--6' #'' 2,#(1! '.' "#' ")&' &!,&"$,?' $'' E$,' $' &,"8 B'
!$"&'#8'+1!)' &,4 !&'#8' *&'"?' &$,+' $+' $8#,&+$ ('8,#%' ")&' #%%$'(N
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4"3' 3' > 27.' .26' /DED/FDG!'

77 Z2#HDE' G5!32#3E!' T18,"&,%$+"&,+-BA

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3 ' O2]D' ' 23"'
.'3"D' , I E3^
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77E' G/2Z#' 8#,' +26!' Z!' @&#'' 2$2&, A77

A ʿ 5,#4 (&(' $-*$?+6' $'(' @&' '' 8$,")&,' &'$!"&(')$"' '#' &&' #,' H,$"1 "?' *)$"+#&4&,' +)$--' @&' . 4&'' #,' 2$ (' 8#,' #,' 12#'' $!!#1''' #8' $'?' E$,,$''' #,' 1%' #8' #'&?' *) !)' +)$--' @&' +Y1&(' '' ,&-$" #'' "#' #,' '' 21,+1$'!&' #8' ") +' !"

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&CD#HD' #8' > IED'. /'GD' $77 .-#,&,#8' 3"D' B 7 3 2' L# /D72#G!' H' 8#OD' GD./26' O6'3"D' +/ F E #' 2E 3 ' O I#3' .

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'/G#2#HD' $'? &. %&'"#,' $""$- #'' #8'")&' +$ (' -"$6' +)$--6' $'" $'?' %&' *) -&'
3 /DE' #' +1!)' &. %&'"#,' $""$- #'' +)$--' '#" @&' &%@#(&(' #,' '' $!"1$-' &,4 !&6'
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' $+')&' #,' ")&?' +)$--' 8,#%' %&' "#' %&' #,(&,' #,' (,&!"6' $'('
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+/ FE #E' .' <' '(' @&' " 81,")&,' &'$!"&(')$"$--' 5,#4 + #'+6' 3 ,&!" #'+7'
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3 ' = G #4E!' +2&!" 4&-?6' $'(' "#' ")&' #,2+' #8' '&,+' #8' $ ' $'(' ' ' $+'
3DZ2/3/ DE!' 81--?' $'(' &88&!"1$--?' $+' 8'")&?' *&,&' ,&+2&!" 4&-?' $'(' +&4&,$--?' ,&2&$"&('
H '' &4&,?' +1!)' 5,#4 + #'6' 3 ,&!" #'6' -$1+&6' $'(' * ")' ,&-$" #'' "#' &4&,?'
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#,2+' B' B' B' B' á á a U' V' U
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3 ""#' B' B') ,&&' B' 3 ""# '
#' +&2$,$"&')$, .&' @& ' .' %$(&' 8#,' ""&' ($' !&' 12#''
")&' #, (' &1"&' $' "#,' 3&21"?' &1"&' $' "+' 8#,') +'
#,' ")& ,' . '$"1,&+' ")&,&"#
#"& G) +' --#*$' !&' +' #8' !#1,+&' #' -?' !)$, .&N
$@-&' @?' ")&' H&' &,$-' -&, :+' #8' ")#+&' #1' " &+'
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3 ""#' B' 8,#%' U ' &'' $' (' 12 * $, (+ V' U' U
U ' #,' #2? ' .+6' #, ,&+2#' (&' !&6' &'' !$&"&,$6' &'' !+&"&,$]
#' ")&' -&, :' #8' H&' &,$-' &&" ' .+' '' $' #1' "?' *)&,&' ")&'
1%@&,' '' ")&' #, . '$-' T1#"$' #8' ")&' - " $' +' UU' &''
#,' 1' (&,' B' B' B' B' B' B ' '
'' $' #1' "?' 81, ' +) ' .' 8,#%' U ' "#' UU' &'' ' U' U
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3 ""#' B' B' 8,#%' TU ' "#' QUU' &' V' U' U
3 ""#' B' B' 8,#%' QU ' &'' $' (' 12 * $, (+ ' '
')&' $!"1$-' %#1' " &92&' (&(' 8#,' 2, ' " ' .' $' (' 21@- +) ' .
")&' (4&," +&%&' "+6' 8#,' 5#+"$. &+6' 92,&++&+6' $' (' &++&' N
.&,+6' "#' @&' $--#*&(' 12#'' $'' !!#1' "6' +2&! 8? ' .' &$!)'
," !-&' #8' 5#+"$. &6' &'' !$&"&,$6' !&," 8 &(' +2&! $--?' @?' ")&'
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' #,' %$: ' .' #1" !#, ,&!" @+",$!"+' 8,#%' ")&' (>1"$' ";+' #,
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)&')$, .&' 8#,' 2, ' " ' .' $' (' 21@- +) ' .' (4&," +&%&' "+ +' '4$, $@-?' "#' @&' +122#,"&(' @?' ")&' &!& 2" #8' ")& 5&,+#'' "#' *)#%' 2$ (

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(I#36' # Z" H"' 3"D' +2/ E"' ./ O' Z" H"' E IH"' C '
C/D#3 HDE' E"277 OD' O I#G!' 2#G' . /' 3"D' (I#36' #
Z" H"' 3"D' +2/ E"' #3 ' Z" H"' E IH"' CC/D#3 HDE'
E"277 OD' O I#G!' E"277 OD' E 3 I 23DGN' 2#G' 27E ' . /'
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R1, +(!" #'' #8' ")&' 5&$!&' 8,#%' ")$"' * ") '' *) !)' ")&' 5-$!&' @?' ")&'
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'"&,&+"+' ' 5#++&++ #'6' &4&,+ #'6' &%$ '(&,6' #,' #")&,* +&6' 1'" -' ")&'
51,!)$+&' #'&?' #,' 51,!)$+&' #' &+' 8#,' ")&' +$%&6' *) !)' +)$--' @&'
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4&+"&(' ' ")&' +$%&' $''&,' $+' $' (+' $' (' &,&("$%&'"+' 21,!)$+&(' /IE3' . /' > E'
8#,' ")&' 4-' &,4 !&' $,&' 4&+"&(' @?' 4 ,"1&' #8' *#' +&4& $-' !"+' #8' B 25DE36' . /'
5$,- $%&'" ,&+2&!" 4&-?' 2$++&(' ' ")&' ,+" $' (' &!#' (' &$,' #8' ")&' 3"D' +IO7 H'
& .' #8' +' -$"&' $>&+"?D ' .' ")&' #1,")6' $' (' ")&' &!#' (' D/F HD
&$,' #8' ")&' & .' #8' +' 2,&+&'" $>&+"?6' '" "1-&(' ,&+2&!" 4&-?'

' ' ' ' . ' ' > ' ' " ' ' ' ' 9 ' H'
' ' ' 0 *' ' ' ' ! ' ' * * ' '
) ' ' 9 ' ' ' ' ' > $ ' ' ' ' ' =
' ! ' ' * * ' $'(A' ' ' ' * ' ' $ ' ' @ ' H' U
' ' ' ' ' * ' ' ' 9 ' ' ' * ' '
' ' * ' ' ' ' ' ' ' ' ' '

' * ' $' (' "#' @&')&-(' $' (' (+2#+&(' #8' 1' (&,' ")&' 5,#4 + #'+'
$' (' &.1-$" #'+' #8' ")&' +$%&' !"+' ' $' (' $+' "#' ")&' ,&%$ ' ' .' 5$," 2#G' 2E' 3 ' 3"D'
#8' ")&' +$%&' E)$,8' $' (' &,&("$%&'"+6' @& ' .' ")&' 2,#>&!" ' .' 5$," C/ 5DH3 #4'
")&,&#8' *) !)' +' #,' - &+' "#' ")&' #,")*$,(' #8' ")&' +",$.)' '&' "#' @&' +2/3!' 3 ' OD'
(,$*' ' $+' $8#,&+$ (6' 1'" -' ")&' 3&%#- " #' ' $' (' &%#4$-' ")&,&#8' $+' "D7G' #' 7]D'
)&,& 'B$8"&,' %&'" #'&(6' "#' $' (' 12#' ' ")&' +$%&' V+&6' ,1+"+6' $' (' B 2##D/! I#3 7'
'"&'" $+' $,&')&,& 'B@&8#,&' -$+"-?' &'$!"&(' $' (' (&!-$,&(' !#'!&,' ' .' GDO 7 E"DG' N
")&' #")&,' 5$," #8' ")&' +$%&' E)$,8' $' (' &,&("$%&'"+' $' (' 8,#%
$' (' $8"&,' +1!)' 3&%#- " #' ' $' (' &%#4$-' $+' $8#,&+$ (6' "#' ")&' V+&' $' (' 2#G' Z"D#' GD^
'"&'" ")$" ")&' "&' ")&,&#86' 8#,' &4&,' 8,&&(' $' (' (+!)$,.&(' 8,#% O 7 E"DG!' 3"D'
")&' +$ (' ?&$,-?' &'" #8' '&')1' (,&(' $' (' & .)"?B+ 9' 5#1' (+6' $' (' 3D' 3 ' OD' 72 G'
&4&,?' 5$," #8' ")&' +$%&6' +)$--' ")&'!&8#,")' @&' $' (' @&' (&&%&(' $ #3 ' 2#G' . /O'
5$," +2/3' .'3"D'
= FD/'
" 2 O DEN

5$,'' #8' ")&' 4&,' 5 * ' $' (' @&' -$ (' #2&' ' $' (' +1@>&!'' "#' ")&' -#*'
$' (' &8-#*' #8' ")&' (&6' $' (' @&!#%&' !#%%#' ' "#' +' $>&+"?'
$' (' $--' +' $>&+"?;+' 1@>&!"+' "#' 2$++' $' (' ,&2$++' 12#' ' $' (' #4&,' ")&'
+$%&6' $' (' +)$--' @&' 1' (&,6' +1@>&!"6' $' (' - $@-&' "#' ")&' +$%&' R1, +(!" #' +6'
.)"+6' 5#*&,+6' 1")#, " &+6' $' (' 5, 4 -&.&+' #8' #'",#-6' 12&, '"&'N
(&' !&6' $' (' #'+&,4$' !?' $+' ")&' $(>$!&' '' 5$,"+' #8' ")&' +$ (' 4&,' $' ('
#8' ")&')#,&+' ")&,&#8'$,&' #,' %$?' @&' @?' $*' +1@>&!'' $' (' - $@-&' "#'
$' (' $+' "#' ")&' +$ (' 5 &!&' #,' 5$,!&-' #8' $' (' #,' H,#1' (' $' (' &,&("$N
%&' '"+' X5$,'' #8' ")&' +$ (' E)$,8' !$--&(' ' / P')&,& 'B@&8#,&'
+&!#' (-?' (&+!, @&(' $' (' 4&+"&(6' 12#' ' ,1+'' 8#,' +1!)' 5&,+#' '#,' 5&,N
+#' '+' $+' $'' #,' %%&($"&-?' @&8#,&' ")&' %&' #8' %$: ' . ") +' !'' *$+' #,'
*&,&' ")&' -$*81-' * '&,6' #,' ")&' +&4&,$-' $' (' ,&+2&!" 4&' -$*81-' * '&,+'
")&,&#86' #,')$(' $' ?' -$*81-' +"$"&+6' .)"+6' #,' '"&,&+"+' ")&,& '6'
$!!#,(' . ' "#' ")& ,' +$ (' +&4&,$-' +"$"&+6' .)"+6' $' (' '"&,&+"+' ' 5#+N
+&++ #' '6' &4&,+ #' '6' &%$ ' (&,6' #,' #")&,* +&6' 1 ' " -' 5#++&++ #' ' #8' ")&'
+$%&' $' (' $' (' &,&("$%&' '"+' +)$--' @&' "$: &' ' $+')&,& 'B$8"&,' %&' N
" #' &(' @?' ")&' +$ (' #%% ++ #' &,+')&,&@?' $22#' '"&(6' $' (' ")&'
51,!)$+&' #' &?' #,' 51,!)$+&' #' &+' 8#,' ")&' +$%&6' "#.&")&,' * ")'
'"&,&+'' 8,#%' ")&' %&' #8' "$: ' . 5#++&++ #' ' $8"&,' ")&' $"&' #8' 4&'
5#1' (+'b ' *' ' *' 8#,' ")&' 1%' #,' 1%+' ")$'' +)$--' @&'
$.,&&(' 12#' ' #,' $++&++&(' $+')&,& 'B$8"&,' %&' " #' &(' $+' ")&' ",1&' <$-1&'
")&,&#86' +)$--' @&' 2$ (' $' (' 8,#%' $' (' $8"&,' ")&' %&' #8' +1!)' 5#++&+N
+ #' ' "$: &' ' $' (' 5$?%&' '' $+' $8#,&+$ (6' ")&' 6' 1'" -' ")&' 3&%#- " #' ' $' ('
&%#4$-' ")&,&#8' $+')&,& 'B$8"&,' %&' " #' &(6' "#' ")&' V+&' #8' ")&' #%N
% ++ #' &,+' 8#,' &9&!1" ' . ")&' 88 !&' #8' #,(' .)' (% ,$-' $8#,&+$ ('
8#,' ")&' %&' @& ' .6' $' (' ")& ,' 1!!&++#,+' ' 88 !&6' ' ,1+'' 8#,' +'
$>&+"?6' +' & ,+' $' (' 1!!&++#,+6' 8#,' ")&' 51@- !' &,4 !&6' $+' #")&,'
$' (+' 21,!)$+&(' 8#,' ")&' V+&' #8' ")&' 4-' 3&2$,"%&' '' $,&' 4&+"&('
1' (&,' ")&' 5,#4 + #' '+' #8' ")&' @&8#,&B%&' " #' &(' !"+' #8' 5$,- $%&' '"
$' (' 8,#%' $' (' $8"&,' +1!)' 3&%#- " #' ' $' (' &%#4$-' $+' -$+'' $8#,&+$ (6'
")&' ' $' (' 8,#%' ")&' !&8#,")' "#' ")&' +$%&' V+&' $' (' '"&' '' $+' $,&')&,& 'N
@&8#,&' &' $!"&(' $' (' (&!-$,&(' !#' !&,' ' . ")&' "&' #8' +1!)' 5$,'' #8' ")&'
+$ (' E)$,8' $' (' &,&("$%&' '"+')&,& 'B@&8#,&' 8 ,+"-?' (&+!, @&(' $' ('
4&+"&(' $+' +' #,' - &+' "#' ")&' #,") *$,(' #8' ")&' +",$.)'' '&' "#' @&' (,$*'
$+' $8#,&+$ (6' 8,#%' $' (' $8"&,' +1!)' 3&%#- " #' ' $' (' &%#4$-' ")&,&#86' $+'
' ")&' +$%&' '$!"%&' '' +' %&' '" #' &(' #,' ,&8&,&(' "#

' ' (' @&' '' 81,")&,' &' $!"&(' ')$'' +1!)' #%2&' +$" #' ' $' ('
$" +8$!" #' ' $+' +)$--' @&' $.,&&(%2#' ' #,' +)$--' @&' $++&++&(' $' (' $*$,(&('
$+')&,& 'B$8"&,' %&' " #' &(6' 8#,' #,' ' ,&+2&!'' #8' ")&' $' (+' $' (' &,&(N
"$%&' '"+')&,&@?' 4&+"&(6' #,' $' ?' +"$"&' #,' '"&,&+'' ")&,& '6' +)$--' @&'
%$(&' #1'' #8' ")&' '&9'' (+' "#' @&' .,$' "&(' @?' 5$,- $%&' '

<' ' (' @&' '' 81,")&,' &' $!"&(')$'' '' +)$--' @&' -$*81-' 8#,' ")&' +$ ('
#%% ++ #' &,+6' $' (' ")&,' ' . '&&,+' $' (' #")&,' 88 !&,+6' E#, :%&' '6'
$' (' &,47$' '+' $!" ' . 1' (&,' ")&,' 1")#, "?6' #,' $' ?' #8' ")&%6' 8,#%' $' ('
%%&($"&-?' $8"&,' ")&' 2$++ ' . #8' ") +' !"6' "#' & "&,' ' "#' $' (' 12#' ' $' ('
"$: &' !#%2-&"&' $' (' &' ' ,&' 5#++&++ #' ' #8' +1!)' 5$,'' #,' 5$,"+' #8' ")&'
$' (+' $' (' &,&("$%&' '"+')&,&@?' 4&+"&(' $+' +)$--' '#'' ")&' @&' '' ")&'
5#++&++ #' ' #8' ")&' +$ (' #%% ++ #' &,+' $' (' '' +)$--' $-+#' @&' -$*81-' 8#,'
")&' +$%&' 5$," &+6' #,' $' ?' #8' ")&%6' $' (' ")&?' $,&')&,&@?' $1")#, L&('
$' (' &%2#*&,&(' X' #' * ")+' $' (' . ' #' 51,!)$+&' #' &+' 8#,' ")&' $' (+'
$' (' &,&("$%&' '"+')&,&@?' 4&+"&(6' #,' $' ?' 5$,'' ")&,&#86' +)$--' ")&'

Margin notes:

2#G' 2E' 3 ' #4Æ@"2/.!' . /' 3"D' ' Z#D/E!' H' I#3 7' + EEDE^ E #' 32]D#' 2#G' +26 0D#3' .' + I /H"2ED' B #D6' 2#G' #3D/DE3'

2#G' 2.3D/^ Z2/GE!' I#3 7' GD0 7 E"DG!' 3 ' OD' "D7G' #' / IE3' . /' > E' B 25DE36' . /' 3"D' + IO7 H' D/F HD' W

2#G' Z"D#' GD0 7 E"DG!' 3 ' 3"D' E2 0D' ED' 2E' 3"D' 3D' "D/D #^ OD. /D' GDEH/ ODG

(OCD#E2^ 3 #' 3 ' OD' 0 2GD' I3' .' 3"D' #D&3' GE

+ ZD/' 3 ' 32]D' + EEDEE #' .' E ' 0 IH'' .3"D' 2#GE' "D/DO6' FDE3DG' 2E' E' # 3' # 3"D' + EEDEE #' .' 3"D' (0 0 E^ E #D/E!' 2#G' 3 ' GD0 7 E'' HD/32 #' +2/3E' .' 3"D' E2 0D

; B ' ' (2C TV Q

)$4&' @&&' ' $. ,&&(' 12# ' 6' #, '$++&++&(6' #, ' 2$ (6[' "#' 21--' (# * ' ' $ ' (' & ' " ,&-?'
(&%#- +)' $ ' (' ,&%#4&' +#' %1!)' #8' ")&' +$ (' E)$,8' !$--&(' 5 '
/ '#")&, * +&') # ' / '$ ' (' ")&' 1 -(' .+' ")&,&# ' 6')&,&@?'
4&+"&(' $+' $8#,&+$ (6' $+' - &+' "#' ")&' #,") * $,(' #8' ")&' +",$.)" '&'
)&,& 'B@&8#,&' %&' " # ' &(6' $ ' (' $-+#' +#' %1!)' #8' ")&' +$ (' E)$,8' !$--&('
F ' / ' ' +')&,& 'B@&8#,&' 2$," !1-$,-?' (&+!, @&(' $ ' (')&,&@?'
4&+"&(' $+' $8#,&+$ (6' +#' $+' "#' ,& ' (&, ' ")&' '&' #8' ")&' &%$ ' (&, ' #8' ")&'
+$ (' E)$,8+' ' &9" ")&')#,&' #8' ")&' +$ (' 4&, ' +",$.)" $ ' (' &4&' ' * ")' ")$"
8#,%&(' @?' ")&' 4&, ' E$--' #8' +' $>&+"?;+' +$ (' 3#! : ?$, (' $" ")&'
E&+"&, ' ' (' ")&,&#8' $ ' (' ")&,&12#' ' ")&?' ")&' +$ (' #%% ++ # ' &,+' &W'% +#'B'
+)$--' * ")' $--' !# ' 4&' &' " 2&&(6' $" ")&' #+"+' $ ' (')$, .&+' #8' +' "# 7
$>&+"?6' +' & ,+' $ ' (' 1! ! &++#,+6' @1 -(' $ ' (' !# ' +",1!" ' ' ")&'
$-@,&+$ (' +",$.)" '&' $-#' . ' ")&' &%$ ' (&, ' #8' ")&' +$ (' E)$,8' !$--&(' 27 #4' ")&' = D '
' / ' $ ' (' $-#' . ' +#' %1!)6' 8' $ ' ?6' #8' ")&' &%$ ' (&, ' #8' O 2 #GD/' #8'
")&' +$ (' E)$,8' !$--&(' 5 ' / '#")&, * +&') # ' / '
*)&,&#8' ")&' ,&&)#-(' $ ' (' ')&, "$ ' !&' %$?' ' #' @&' 21, !)$+&(' 8#, ' ")&' O I H"' 2E'
51,2#+&+' #8' ") +' !"6' $' ,# ' "$. &' E$--' "# * $,(+' ") ' 4&,6' &C1$-' ' !!26' # 3' @&'
1@+"$ ' !&' $ ' (' T1$- "?' "#' ")&' 2,&+& ' " ,# ' "$. &' ")&,&#8' ,&+2&!" 4&-?6' 21, !@$"&(' #8'
+#' $+' "#' ,& ' (&, ' +1!)' &%$ ' (&, ' #8' ")&' +$%&' E)$,8+' 8 " $ ' (' +&,4 !&B' 7
$@-&' "#' @&' 1+&(' 8#, ' ")&' 51,2#+&+' 8#, ' *) !)' +1!)' E)$,8+' ,&+2&!" 4&-?' +",$.)" '&'
'# * ' $,&' #, ' -$ * 81--?' %$?' @&' 1+&(6' $ ' (' "#' !#%2-&"&' ")&' +$%&6' $ ' (' Z 3"' 3"T'
+)$--' $" ")&' - :&' #+"+' $ ' (')$, .&+' 8 -- ' ' $ ' (' %$: &' .##(' ")&' H,#1 ' ('
$ ' (' # - 12' "#' ")&' +$ (' ,# ' "$. &' E$--+' +#' "#' @&' %$(&' $+' $8#,&+$ (6' ;
+1!)' E$--' ' &4&,")&-&++' "#' &9"&' (' E&+"* $,(' # ' -?' "#' ")&' E&+"&, ' ' (' 7
#8' ")&' +$ (' E)$,8' !$--&(' # ' / ' 1 ' -&++' ")&' +$ (' #%% ++ # ' &,+'
+)$--' ") ' : ' 8 " 81,")&, ' "#' &9"&' (' ")&' +$%&' $ ' (' " +)$--' @&' -$ * 8@8 8#, ' + ZD/' "#'
")&' +$ (' #%% ++ # ' &,+6' 8' ")&?' +)$--' +#' ") ' : ' 8 "6' $" ")&' - :&' #+"+' $ ' ('
)$, .&+' $+' $8#,&+$ (6' "#' @1 -(' $ ' (' !# ' +",1!" ' ' ")&' $8#,&+$ (' +",$.)"
'&' $-#' . ' ")&' 2$!&' @&" * &&' ' ")&' &%$ ' (&, ' #8' ")&' +$ (' E)$,8' !$--&(' C2HD' OD '
' / ' $ ' (' ")&' &%$ ' (&, ' #8' ")&' +$ (' E)$,8' !$--&(' 5 ' 3ZDD#' / # 36'
/ '#")&, * +&') # ' / ' #, ' $-#' . ' $ ' ?' 5$," #8' ")&' +$ ('
2$!&6' $' ,# ' "$. &' E$--' "# * $,(+' ")&' 4&, ' #8' +1!)' 1@+"$ ' !&' $ ' ('
T1$- "?' $+' ")&?' +)$--' ") ' : ' 2,#2&,6' $ ' (' "#' 8 -- ' ' $ ' (' %$: &' .##(' ")&'
H,#1 ' (' $ ' (' # - ' $" ")&' $! : ' ")&,&#8' "#' ")&' &4&-' #8' ")&' $(>$!& '
H,#1 ' (' 5,#4 (&(' $-* $?+6' ")$" ' !# ' +",1!" ' . ' ")&' +$ (' ,# ' "$. &' + ZD/' "#' GD '
E$--' #, ' E$--+' " +)$--' @&' -$ * 81-' 8#, ' ")&' +$ (' #%% ++ # ' &,+6' ' !$+&'
")&?' +)$--' (&&%6' " &92&(& ' " +#' "#' (#6' "#' (&4 $"&' #1") * $,(+' ' +1!)' 7 U
$ ' &, ' $ ' (' "#' +1!)' 9"& ' " $+' ")&?' %$?' ") ' : ' 2,#2&, ' 8,#%' ")&' (#ED#3' #8'
+",$.)" '&')&,& 'B@&8#,&' +2&! 8 &(' 8#, ' ")&' +$%&6' * ")' ")&' # ' +&' " ' Z#D/E!' H '
#8' ")&' * ' &,+' #8' $ ' (' 5$," &+' ' "&,&+"&(' ' ")&' $ ' (+' $ ' (' &,&("$N
%&' "+' "#' @&' $8&&!"&(' @?' +1!)' 3&4 $" # ' 6' #, ' +1!)' 5&,+#' +' # ' ")& , ' ,&+2&!N
" 4&' &)$-8' $+' $,&')&,& 'B$8"&, ' $1")#, L&(' #, ' !$2$! "$"&(' "#' !# ' " ,$!"
8#, ' ")&' $-&' #8' ")&' $ ' (+$ ' (' &,&("$%&' "+')&,&@?' 4&+"&(' ' $ ' ?' ") ' . '
' ") +' !" !# ' "$ ' &(' "#' ")&' !# ' " ,$,?' ")&,&#8' ' #" * ")+"$ ' (' ' .

< ' ' (' *)&,&$+' " %$?' @&' &92&(& ' " 8#, ' ")&' V+&' #8' +' $>&+"?;+' H2ED' 3"D'
+$ (' 3#! : ?$,(' $ ' (' ")&' 51,2#+&+' #8' ") +' ! " ")$" ")&' 2,&+& ' " $ ' (' . ' (O O EE #^
5-$!&' + "1$"&' $" ")&' E&+"&, ' 9",&% "?' #8' ")&' +$ (' 3#! : ?$, (' +)#1-(' D/E' E"27' . / O'
@&' $@#- +)&(6' $ ' (")$" ")&' E$?' #, ' 5$++$.&' -&$(' . ' 8,#%' ")&' +$ (' 2' #DZ' 2#G^
$ ' (' . ' 5-$!&' ' "#' ")&' #$(' *) !)' ,1 ' +' # ' ")&' 1"+ (&' #8' ")&' #4' +72HD!' 2#G'
E&+"&, ' #1 ' ($,?' E$--' #, ' & ' !&' #8' ")&' +$ (' 3#! : ?$, (' +)#1-(' @&' O 2] D' 2'
+"#22&(' 1 2 ' @&' " ")&,&8#,&' 81,")&, ' & ' $!"&(')$" 8' ")&' +$ (' #%N +2EE24D'
% ++ # ' &,+6' $" ")&' 92&' !&' #8' +' $>&+"?6' +' & ,+' #, ' 1! ! &++#,+6' 3"D/D3 !' 3"D'
' ' 6' +)$-- 3D' . ' 3"D'
n /DED#3' 2#G^
#4' +72HD' 23

3"D' @DE3D/# &3/D O 36' .'3"D' * H]' -2/G E"27' OD'G EH"2/4DG' ./ O' 27' = 4"3' .' I E #4' 3"D

+)$--' 8#,%' $'(' !#'+",1!"6' $"' $'?' 2#"' * ") '' ")&' #1'($, &+' #8' ")&& E)$,8'#,75 &!&' #8' H,#1'(')&,& 'B@&8#,&' 8 ,+"-?' (&+!, @&(' $'(' 4&+"&(6' $' '&*' $,(' #,' $'('.' 5-$!&' 8" $'(' 2,#2&,' 8#,' $--' +1!)' 51,2#+&+' 8@,' *) !)' ")&' +$ (' 2,&+&'" $'('.' 5-$!&' '#E' +' #,' -$*81--?' %$?' @&' 1+&(6' $'(' +)$--' +&'" #1" $'(' %$:&' $' E$?' #,' 5$++$.&' #8' '#" -&++' ")$'' &'' &&" '' E (")' 8,#%' +1!)' 'Y*' $,(' #,' $'('.' 5-$!#' '"#' ")&' $8#,&+$ (' #$(' "#' !#%%1' !$"&' ")&,&* ")6' $'(' +)$--' !#%2-&"&' $'(' #2&'' ")&' +$%&' "#' ")&' V+&' #8' +1!)' 5&,+#'+6' 8' $'?6' $+' $,&' #,' %$?' @&' -$*81--?' &'" "-&(' "#' 1+&' ")&' +$ (' 2,&+&'" $'('.' 5-$!&' $'(' E7$?6' #,' 5$++$.&' ")&,&"#6' ")&'' $'(' 8,#%' ")&'!&8#,")' ")&' H,#1'(' #,' #-' 8#,% '.' ")&' "&' #8' ")&' +$ (' -$+"B%&'" #'&(' $'('.' 5-$!&' $'(' E$?' #,' 5$++$.&' X$'(' *) !)' +' '#*' 4&+"&(' '' ")&' H#%% ++ #' ,+' 8#,' &9&!1" '.' ")&' 88 !&' #8' #,(' .)' (% ,$-' $8#,&+$ (6' '' ,V+" 8#,' +' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' 8#,' ")&' 4-' V&2$,"%&'" #8' ")&' 51@- !' &,4 !&6' 1'(&,' ")&' 5,#4 + #'+' #8' ")&' @&8#,&B'"&'" #'&(' !"+' #8' 5$,- $%&'"[+)$--' @&' $'(' ,&" $ '' 8,&&(' $'(' (+!)$,.&(' 8, %6' $--' 21@- !' $'(' 2, 4$"&' .)"+' $'(' -$ %+' #8' 1+ '.' #,' 2$++ '.' #4&,' ")&' +$%&6' 8' $'?' +1!)' ")&,&' @&

< ' '(' @&' '" 81,")&,' &'$!"&(')$"6' 8#,' &88&!" '.' $'?' #8' ")&' 51,2#+&+' #8' ") +' !"6' '" +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' $'(' ")&,' '.' '&&,+' $'(' #")&,' 88 !&,+6' E7#,:%&'6' $'(' &,4$'"+6' #,' $'?' #8' ")&%6' $'(' ")&?' $,&')&,&@?' $1")#, L&(6' * ")' #,+&+6' $,"+6' $'(' $,, $.&+6' #,' #")&,* +&6' 8,#%' %&' "#' %&' $'(' $" $--' %&+' %%&(' $"&-?' $8"&,' ")&' 2$++ '.' #8' ") +' !"6' $'(' 1'"-' ")&' 51,2#+&+' ")&,&#8' +)$--')$4&' @&&'' !#%2-&"&-?' &88&!"&(6' "#' &'"&,' @"#' $'J-' 12#'' $--' #,' $'?' #8' ")&' $'(+' $(># ' '.' ")&' +$ (' $'(+' $'(' &,&("$%&'"+')&,&@?' 4&+"&(6' $'(' "#' (&2#+'"")&,&#'6' #,' #'' $'?' 5$,"#,' 5$,"+' ")&,&#8' $'(' ")&,&' "#' :&&26' %$:&6' 126' $'(' 1+&6' $'?' $"&, $-+' *)$"+#&4&,' *) !)' +)$--' #,' %$?' @&' '&!&++$,?' #,' ,&C1 ,&(' 8#,' ")&' @1 -('.6' &,&!" '.6' $'(' !#'+",1!" '.' ")&' $8#,&+$ (' E$--+6' 5$++$.&6' $'(' $'('.' 5-$!&6' #,' #")&,' * +&' 8#,' ")&' !$,,? '.' "#' &888&!" $--' #,' $'?' #8' ")&' 51,2#+&+' #8' ") +' !"6' ")&?' ")&' +$ (' #%% ++ #'&,+6' $"' ")&' 92&'!&' #8' +' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' %$:' '.' #%2&'+$"#' #,' $" +8$!" #' "#' ")&' 5&,+#' #,' 5&,+#'+' '' *)#+&' !!12$" #' $'?' $'(+' *) !)' %$?' @&' +#' 1+&(' +)$--' @&6' 8#,' $--' 3$%$.&+' "#' @&' @?' ")&%' +1+"$ '&(' @?' %&$'+' ")&,&#86' *) !)' #%2&'+$" #' #,' $" +8$!" #' +)$--' $'(' %$?' @&' $.,&&(' 8#,' $'(' $+!&,"$ '&(' $'(' $++&++&(' '' ")&' +$%&' $''&,6' $'(' 1'(&,' ")&' +$%&' 5&,*&,+' $'(' ,&.1-$" #'+' $,&' #,' $"' @&' %$(&' $22- !$@-&6' $+' $,&')&,&@?' 2,#4 (&(' * ")' ,&+2&!"' "#' ")&' 51,!)$+&' #' &+' #8' ")&' $'(+' $'(' &,&("$%&'"+')&,&@?' $1")#, L&(' "#' @&' 21,!)$+&(

(O O E^ E #D/E' D O^ C ZD/DG' 3' CI/H"2ED' 2#GE' "D/DO6' FDE3DG!' 2#G' (/C /23 #E!' H' O26' H #^ 3/2H3' . /' 3"D' 27D' 3"D/D .!' 2#G' 27E '. /' (OCD#E2^ 3 #' /' 23 E

< ' '(' @&' '" 81,")&,' &'$!"&(')$"' '" +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+' $'(' ")&?' $,&')&,&@?' $1")#, L&(' $'(' &%2#*&,&(' "#' ",&$"' $'(' $.,&&' * ")' $--' #,' $'?' #8' ")&' *'&,+' #,' 5,#2, &"#,+' #8' $'(' 5&,+#'+' '"&,&+"&(' '' #,')&,& '.' $'?' !$2$! "?' "$"&(' "#' !#'",$!" $'(' $.,&&' * ")' ")&' +$ (' #%% ++ #'&,+' 8#,' $'(' $'(' &,&("$%&'"+')&,&@?' 4&+"&(' $'(' $8#,&+$ (6' 8#,' ")&' $@+#-1"&' 51,!)$+&')&,&#86' $'(' #8' $--' +"$"&' '"&,&+"')&,&' 6' $'(' 8#,' ")&' 22#,"#'%&'" #8' ")&' +$ (' ?&$,-?' &'" #8' '&')1'(,&(' $'(' & .)"?B+ 9' 5#1'(+6' $'(' 8#,' ")&' 9" '.1 +)%&'" #8' ")&' E)#-&' #,' #8' $' 2,#2#,' #'$"&' 5$," ")&,&#86' 8#,' +1!)' #%N 2&'+$" #' #,' C1 4$-&'" $+')&,&' 'B$8"&,' %&'" #'&(6' $'(' 8#,' ")$"

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'' ")&' +$%&' $''&,' $+' 8' ")&?' *&,&' +#-&' $'(' 1'%$,, &(6' +& +&(6'
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")+ʿ !'ʿ @&ʿ '!2@-&ʿ #8ʿ &88&!"1$--?ʿ %$: '.+1!)ʿ .,&&%&'"ʿ #,ʿ $-&ʿ
")&,&#86ʿ #,ʿ +)$--ʿ '#"ʿ (+!-#+&ʿ $'(ʿ 2,#4&ʿ ")&ʿ "$"&ʿ #8ʿ ")&ʿ "-&ʿ "#ʿ ")&ʿ
5,&% +&+ʿ #8ʿ *) !)ʿ ")&?ʿ ,&+2&!" 4&-?ʿ %$?ʿ)$4&ʿ @&&'ʿ 'ʿ 2#++&++ #'ʿ $"ʿ
")&ʿ %&ʿ 5#++&++ #'ʿ +)$--ʿ)$4&ʿ @&&'ʿ "$:&'ʿ ")&,&#8ʿ 1'(&,ʿ ")&ʿ 5#*&,+ʿ
#8ʿ ")+ʿ !"6ʿ #,ʿ *) !)ʿ ")&?ʿ ,&+2&!" 4&-?ʿ !-$ %ʿ "#ʿ @&ʿ &'" "-&(ʿ 1'"#ʿ
#,ʿ '"&,&+"&(ʿ '6ʿ #,ʿ 'ʿ $'?ʿ ʿ *)&,&ʿ .,&&%&'"ʿ 8#,ʿ #%2&'N
+$" #'ʿ 8#,ʿ 3$%$.&+ʿ '!1,,&(ʿ 'ʿ ")&ʿ 9&!1" #'ʿ #8ʿ ")+ʿ !"ʿ !$''#"
/ @&

@&' %$(&6' #,' '' !$+&' $'?' 3 +21"&' #,' 3 88&,&'!&' +)$--' $, +&' ,&+2&!" ' .'
")&' 22#,"#'%&''' #8' ")&' +$ (' ?&$,-?' &''' #8' '&')1'(,&('$'('
& .)"?B+ 9' 5#1'(+6' #,' ")&' 1%' "#' @&' 2$ (' 8#,' ")&' 9" ' .1 +)%&'''
#8' ")&' E)#-&' #,' $' 2,#2#,"#'$"&' 5$,'' ")&,&#86' #,' '' !$+&' ")&' +$ ('
#%% ++ #'&,+' +)$--' '#'' * ") '' ")&' 5&, #(' #8'),&&' $-&'($,' #'")+'
'&9'' $8"&,' ")&' 92 ,$" #'' #8' +1!)' #" !&' $+' $8#,&+$ (')$4&' $+!&,"$ '&('
"#' ")&,' &'" ,&' $" +8$!" #'' '' *)#%' ")&' +$ (' $'(+' $'(' &,&(N
"$%&'"+6' +"$"&+' $'(' '"&,&+"+6' #,' $'?' #8' ")&%' ,&+2&!" 4&-?6' *%,&
-$*81--?' 4&+"&(' $'' #,' %%&($"&-?' @&8#,&' ")&' 2$++ ' .' #8' ") +' !"6'
#,' *)#' *$+' #,' *&,&' ")&' 5&,+#'' #,' 5&,+#'+' &'" "-&(' #,' @?' ") +' !''
!2! "$"&(' "#' +&--6' !#'",$!"6' #,' $.,&&' $+' $8#,&+$ (6' ")&'' $'(' '' &4&,?'
+1!)' $+&' ")&' +$ (' #%% ++ #'&,+' +)$--6' $'(' ")&?' $,&')&,&@?' ,&C1 ,&('
8,#%' %&' "#' %&' "#' ++1&' $' E$,,$'' 1'(&,' ")&,' 5-$'(+' $'(' ")&'
&$-' #8' ")&' 88 !&' #8' (% ,$-"?' "#' ")&')&, 88' #8' ")&' +$ (' #1'"?6'
,&C1 , ' .') %' "#' +1%%#'6' ,&"1,'6' $'(' %2$''&-6' $'(' ")&' +$ (')&, 88'
+')&,&@?' $!!#,(' .-?' &%2#*&,&(' $'(' ,&C1 ,&(' "#' +1%%#'6' ,&"1,'6'
$'(' %2$''&-6' $' R1,?' #8' '#'' -&++' ")$'' *&'"?B8#1,' +188 ! &''' $'('
'(88&,&''' &'6' C1$- 8 &(' $!!#,(' .' "#' ")&' $*+' #8' ") +' &$-%' "#'
+&,4&' #'' 2&! $-' R1, &+' 8#,' , $-+' #8' ++1&+' '' +' $>&+"?;+' #1,"+'
#8' &!#,(' $'' / * -' $'(' ")&' 5&,+#'+' +#' "#' @&' +1%%#'&(6'
,&"1,'&(6' $'(' %2$''&--&('$,&')&,&@?' ,&C1 ,&(' "#' $22&$,' @&8#,&' ")&'
+$ (')&, 88' #,') +' V'(&,')&, 88' $'' +1!)' %&' $'(' 5-$!&' * ") '' ")&'
+$ (' #1'"?' $+' '' +1!)' E$,,$''' +)$--' @&' $22#' '"&(6' $'(' "#' $""&'('
8,#%' 3$?' "#' 3$?' 1'" -' (1-?' (+!)$,.&(' ' $'(' #1'' #8' ")&' 5&,+#'+' +#'
"#' @&' +1%%#'&(6' ,&"1,'&(6' $'(' %2$''&--&(6' #,' #1'' #8' +1!)' #8' ")&%'
$+' +)$--' $22&$,6' $' R1,?' #8' *&-4&' &'' +)$--' @&' %2$''&--&(' @?'
")&' +$ (')&, 88' #,' V'(&,')&, 886' #,' @?' +#%&' 5&,+#'' "#' @&' @?' ")&%'
,&+2&!" 4&-?' $22#' '"&(6' '' +1!)' $''&,' $+' 2&! $-' R1, &+' 8#,' , $-+'
#8' ++1&+' >#' '&(' '' +' $>&+"?;+' #1,"+' #8' &!#,(' $'' / * '
$,&' @?' $*' (,&!"&(' "#' @&' %2$''&--&(6' $'(' $--' 5$,"&+' !#'!&,'&('
%$?')$4&' ")&,' -$*81-')$--&'.&+' $.$ '+'' $'?' #8' ")&' +$ (' R1,?%&'6'
@1'' +)$--' '#'' !)$--&'.&' ")&' ,,$?' $'(' ")&' +$ (')&, 88' #,' V'(&,'
)&, 88' +')&,&@?' &%2#*&,&(' $'(' ,&C1 ,&(' "#' +1%%#'' @&8#,&') %'
$--' 5&,+#'+' *)#' +)$--' @&' ")#1.)'' '&!&++$,?' "#' @&' &9$% '&(' $+' E "N
'&++&+' "#1!) ' .' ")&' $""&,+' '' C1&+" #'6' $'(' +)$--' $'(' %$?' 1+&'
$--' +1!)' #")&,' -$*81-' E$?+' $'(' &$'+6' $+' *&--' 8#,') +' #*'' $+' 8#,'
")&' +$ (' R1,?;+' @&""&,' '8#,%$"#'6' $+' +)$--' @&' ,&C1 + "&' '' ")&' 5,&N
% +&+' ' $'(' +1!)' R1,?' +)$--' 12#'' ")&,' $")+6' #,' @&' ' .' T1$:&,+' 12#''
")&,' +#-&%'' 88 ,%$" #'+6' X*) !)' $")+' $'(' +#-&%'' 88 ,%$" #'+6' $+'
*&--' $+' ")&' $")+' $'(' +#-&%'' 88 ,%$" #'+' #8' $--' 5&,+#'+' *)#' +)$--'
@&' !$--&(' 12#'' "#' . 4&' 4 (&'!&6' ")&' +$ (')&, 88' #,' V'(&,')&, 88' +'
)&,&@?' &%2#*&,&(' $'(' ,&C1 ,&(' "#' $(% ' +"&,6[' 'C1 ,&' #8' $'(' $++&++'
$'(' . 4&' $' <&,(!'' 8#,' ")&' ",1&' $'(' ,&$-' <$-1&' #8' +1!)' #8' ")&' +$ ('
$'(+' $'(' &,&("$%&'"+')&,&@?' 4&+"&(' $+' +)$--')$4&' @&&'' "$:&''
$'(' 1+&(' #,' $+' +)$--' @&' ,&C1 ,&(' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' #,' #8'
$'?' 5$,'')&,&#86' #,' ")&' ",1&' $'(' ,&$-' <$-1&' #8' $'?' +"$"&+' #,' '"&,&+"+'
")&,& '' *) !)' %$?' @&' ")&' !!$+ #'' #,' 1@>&!'' #8' +1!)' 'C1 ,?6' $'('
+)$--' +&""-&' $'(' (&"&,% '&6' 8'')&,&1'"#' ,&C1 ,&(6' ")&' 22#,"#'%&'''
#8' ")&' +$ (' &'"6' $'(' ")&' 1%' "#' @&' 2$ (' 8#,' ")&' 9" ' .1 +)%&''' #8'
")&' E)#-&' #,' $' 2,#2#,"#'$"&' 5$,'' ")&,&#8' $'(' $-+#6' ")&' 1%' #8'
#'&?' "#' @&' 2$ (' @?' *$?' #8' $" +8$!" #'' #,' #%2&'+$" #'6' & ")&,' 8#,'
")&' 3$%$.&+' *) !)' +)$--' @&8#,&' ")$'' %&')$4&' @&&'' (#'&' #,'
+1+"$ '&(' $+' $8#,&+$ (6' #,' 8#,' ")&' 81"1,&' "&%2#,$,?' #,' 2&,2&"1$-' #,'
8#,' $'?' ,&!1,, ' .' 3$%$.&+' *) !)' +)$--')$4&' @&&'' +#' (#'&' #,' +1+B

Q ' ;' ' K , B ' (2C52

"$ '&(' $+' $8#,&+$ (6' $'(' ")&' $1+&' #8' !!$+ #'' #8' *) !)' +)$--')$4&A'
@&&'' '' 5$,"' #'-?' #@4 $"&(6' ,&%#4&(6' #,' ,&2$,&(' @?' ")&' +$ (' #%N
% ++ #'&,+6' $'(' *) !)' !$''#"' #,' * --' '#"' @&' 81,")&,' #@4 $"&(6'
,&%#4&(6' #,' ,&2$,&(6' @?' ")&%6' *) !)' $" +8$!" #'' #,' #%2&'+$8 #''
8#,' +1!)' 3$%$.&+' #,' #++' +)$--' @&' 'C1 ,&(' '"#' $'(' $++&++&('
+&2$,$"&-?' $'(' (+" '!"-?' 8,#%' ")&' <$-1&' #8' ")&' $'(+' $'(' &,&("$N
%&''+' +#' "#' @&' "$:&'' #,' 1+&(' $+' $8#,&+$ (' $'(' ")&' $ (')&, 88' #,'
V'(&,')&, 88' +)$--' $!!#,('.-?' 7 4&' R1(.%&''' 8#,' +1!)' 51,!)$+&'
#'&?6' $" +8$!" #'6' #,' #%2&'+$" #'6' $'(' 8#,' +1!)' 22#," #'%&''
$+' +)$--' @&' $++&++&(' $'(' +&""-&(' @?' +1!)' R1,?6' *) !)' +$ (' <&,(!''
$'(' ")&' R1(.%&''' ")&,&#'' "#' @&' 2,#'#1'!&(' $+' $8#,&+$ (' +)$--' @&'
@ '('.' $'(' !#'!-1+ 4&' "#' $--' '"&''+' $'(' 51,2#+&+' 12#'' $--' #,2#,$N
"#'+' $'(' 5&,+#'+' *)$"+#&4&,] 5,#4 (&(' $-*$?+6' ")$"' '#"' -&++' ")$''
#,"?B"*#' 3$?+' #" !&' '' E, " '.' #8' ")&' %&' $'(' 5-$!&' $"' *) !)'
+1!)' R1,?' $,&' +#' ,&C1 ,&(' "#' @&' ,&"1,'&(' +)$--' @&' . 4&'' @?' #,' #''
")&' 5$,"' #8' ")&' +$ (' #%% ++ #'&,+' "#' ")&' 5$,"?' * ")' *)#%' $'?'
+1!)' #'',#4&,+?' +)$--' $, +&6' @?' !$1+ '.' ")&' +$%&' "#' @&' $88 9&(' 12#''
")&' 2, '! 2$-' 3##,' #8' ")&' 5$, +)')1,!)' #8' / * ' $8#,&+8" (6'
$'(' "#' @&' 21@- +)&(' '' ")&' ' K 2' $'(' @?' -&$4 '.' V!)'
#" !&' $"' ")&' 3 *&-- '.' #1+&' #8' ")&' 5&,+#'6' #,' ")&' -&,:' #,' .&'''
#,' 2, '! 2$-' 88 !&; #8' ")&' #,2#,$" #'6' #,' * ")' +#%&' &'$''' #,'
!!12 &,' #8' ")&' 5,&% +&+' '"&'(&(' "#' @&' 4$-1&(6' #,' ,&+2&!" '.' *) !)'
#,' $'?' 3$%$.&' "#' *) !)' $'?' +1!)' T1&+" #'' +)$--' $, +&6' #,' $88 9 '.6'
")&' +$%&' #'' +#%&' 5$,"' ")&,&#8] 5,#4 (&(' $-+#6' ")$"' '' &4&,?' 5,#N
!&&('.' @&8#,&' $'?' +1!)' R1,?' $+' $8#,&+$ (' ")&' 5$,"?' !-$ % '.' #%N
2&'+$" #'' +)$--' @&' (&&%&(' "#' @&' ")&' 5-$ '' 886' $'(' ")&' +$ (' #' % +B'
+ #'&,+' ")&' 3&&&'($''+

7?' GD.2173' .' ' '(' @&' '' 81,")&,' &'$!"&(')$"' '' !$+&' $' +188 ! &''' R1,?' "#'
,!/ /E!' "D^ "$:&' ")&' 'C1 + " #'' +)$--' '#'' $22&$,' 12#'' ")&' &"1,'' #8' ")&' $('
/ ..'3 ' 2G^ E$,,$''6' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (')&, 88' #,' V'(&,')&, 88' $'('
5 !/#' 3" ' #')&' +')&,&@?' ,&C1 ,&(6' 8,#%' %&' "#' %&6' 1'' -' $' +188 ! &'''R1,?' +)$--'
e(/6' !#3 7)$4&' @&&'' #@"$ '&(' @?' ")&' &$'+' $8#,&+$ (6' "#' $(>#1,'' ")&' 'C1 ,?'
2' E! .. H D#3' "#' $'?' 81"1,&' 3$?' '#"' &9!&&('.' #1,"&&'' 3$?+' '#,' -&++' ")$'' 1 '
) ! OOD/' 2C^ 3$?+' 8,#%' ")&' (>#1,'%&''' ")&,&#86' $'(' *)&'' $' +188 ! &''' 1%@&,'
CD2/ #8' R1,#,+' +)$--' $22&$,')&' +)$--' 2,#!&&(' "#' +E&$' $'(' %2$''&-' *&-4&'
#8'")&%6' *)#' +)$--' 'C1 ,&' $+' $8#,&+$ (

) ' +D/E #' 3 ' ' '(' @&' '' 81,")&,' &'$!"&(')$"' '#' 5&,+#'' +)$--' @&')&$,('
OD' "D2/G @&8#,&' ")&' +$ (')&, 88' #,' V'(&,')&, 88' $'(' R1,?' "#1!) '.' ")&' $"'&,'
!C # 3"D' #^ #8' ")&' 'C1 ,?' 1'-&++' $' 2,&4 #1+' #" !&' '' E, " '.' #8' #1,"&&'' 3$?+'
\! /6' Z 3"^ $'' ")&' -&$+'' @&8#,&' ")&' "$: '.' #8' +1!)' 'C1 + " #'' +)$--' @&' . 4&'' "#' ")&'
!3' 4 F #4' +$ (' #%% ++ #'&,+' #,' ")&' #- ! "#,' #8' ")&' (% ,$-"?' 8#,' ")&' %&'
C/DF !E') ^ @&' '.6' !#'"$ ' '.' $' 81--' $'(' 2$," !1-$,' "$"&%&''' $'(' !!#1''' #8' ")&'
3 HD' .' " E' $"1,&' $'(' 9"&''' #8' ")&' +"$"&' #,' '"&,&+'' '' ,&+2&!'' *)&,&#8' +1!)'
372 /2 5&,+#'' +)$--' !-$ %6' "#' @&')&$,(

,!/63 ' G E' ' '(' @&' '' 81,")&,' &'$!"&(6')$"' ")&' +$ (' R1,?6' $"' ")&' %&'
3 4! EO' 3"D' #8' $++&++ '.' $+' $8#,&+$ (' ")&' ",1&' $'(' ,&$-' <$-1&' #8' ")&' +$ (' $'(+'
27!D' .' HD/^ $'(' &,&("$%&''+6' #,' $'?' 5$,'' ")&,&#86' +)$--' $'(' ")&?' $,&')&,&@?'
32# a2/ ' .' ,&C1 ,&(' "#' (+" '.1 +)' ")&' <$-1&' #8' ")&' 5$,'')&' &@?' 4&+"&(' #8' ")&'
3"D' 7a/D $D !' +$ (' E)$,8' !$--&(' F ' / ' 8,#%' ")&' <$-1&' #8' ")&' #")&,' $'(+'
20'/!' ED337D' $'(' &,&("$%&''+6' $'(' +)$--' $'(' ")&?' $,&')&,&@?' &%2#*&,&(6' 8")&,&N
3"D' +/ C .' 1'"#' ,&C1 ,&(6' "#' +&""-&' *)$"')$,&+' $'(' 5,#2#," #'+' #8' ")&' 51,!)$+&
37 #E' 3 ' OD' ' 6' #'&?
277 ZDG3 '3"D

ʻ $ B ʻ ʻ (2CʻTVʻ Q

A #' ?ʻ #,ʻ #%2&'+$" #'ʻ 8#,ʻ 3$%$.&+ʻ *) !)ʻ +)$--ʻ @&ʻ $++&++&(ʻ $+ʻ *'&,+ʻ#8ʻ
$8#,&+$ (ʻ+)$--ʻ@&ʻ $--#*&(ʻ "#ʻ $'?ʻ &'$'"ʻ #,ʻ #")&,ʻ 5&,+#'ʻ 8#,ʻ $'?ʻ) +ʻ
#,ʻ)&,ʻ 2$," !1-$,ʻ +"$"&6ʻ &,%6ʻ #,ʻ '"&,&+"ʻ 'ʻ")&ʻ 5,&% +&+ʻ;")$"ʻ %$?ʻ
@&ʻ +)#*'ʻ"#ʻ)$4&ʻ @&&'ʻ #,ʻ "#ʻ @&ʻ &9 +" ' .ʻ")&,& 'ʻ ,&+2&!" 4&-?ʻ$"ʻ ʻ
%&ʻ 5#++&++ #'ʻ +)$--ʻ)$4&ʻ @&&'ʻ "$:&'ʻ ")&,&#8ʻ $+ʻ $8#,&+$ (ʻ 'ʻ ")&ʻ
$+&ʻ #8ʻ ")&ʻ +$ (ʻ E)$,8ʻ !$--&(ʻ Fʻ / ʻ $'(ʻ $"ʻ ")&ʻ %&ʻ #8ʻ
")&ʻ "$: ' .ʻ #8ʻ ")&ʻ +$ (ʻ 'C1 + " #'ʻ 'ʻ ")&ʻ $+&ʻ #8ʻ 5 ʻ / ʻ
#")&,* +&ʻ) Fʻ / ʻ$8#,&+$ (

ʻ 5,#4 (&(ʻ$-*$?+6ʻ$'(ʻ@&ʻ "ʻ81,")&,ʻ&'$!"&(ʻ)$"ʻ 8ʻ$'(ʻ*)&'ʻ :3D/ʻ CC /ʻ
$'?ʻ 5$,"ʻ #8ʻ ")&ʻ +$ (ʻ &'"ʻ #8ʻ '&ʻ)1'(,&(ʻ$'(ʻ& .)"?B+ 9ʻ 5#1'(+ʻ 3 ## D3 3ʻD.ʻ
+)$--ʻ @&ʻ ,&-&$+&(ʻ #,ʻ &9" ' .1 +)&(6ʻ @?ʻ ,&$+#'ʻ #8ʻ ")&ʻ 51,!)$+&ʻ #8ʻ ")&ʻ =D#3!ʻ 2#GEʻ
$'(ʻ$'(ʻ &,&("$%&'"+ʻ 'ʻ ,&+2&!"ʻ*)&,&#8ʻ")&ʻ +$%&ʻ +)$--ʻ)$4&ʻ@&&'ʻ H"2/4D2O7Dʻ
$22#," #'&(6ʻ #,ʻ #")&,* +&6ʻ @?ʻ 4 ,"1&ʻ #,ʻ 'ʻ 21,+1$'!&ʻ #8ʻ ") +ʻ !"6ʻ ")&ʻ 3"D/DZ 3"ʻ # 3ʻ
#")&,ʻ $'(+6ʻ &'&%&'"+6ʻ $'(ʻ &,&("$%&'"+ʻ #1"ʻ #8ʻ #,ʻ 'ʻ ,&+2&!"ʻ #8ʻ CI/H"2EDGʻ 3 ʻ
*) !)6ʻ>#ʻ '"-?ʻ * ")ʻ ")&ʻ $'(ʻ$'(ʻ &,&("$%&'"+ʻ +#ʻ "#ʻ @&ʻ 21,!)$+&(6ʻ ODʻ EIO5DH3ʻ
")&ʻ +$ (ʻ &'"ʻ +ʻ '#*ʻ ++1 ' .ʻ #,ʻ 2$?$@-&6ʻ +)$--ʻ @&ʻ !)$,.&$@-&ʻ #'-?ʻ #76ʻ 3 ʻ 3"Dʻ
*")ʻ")&ʻ &%$ '(&,ʻ #8ʻ +1!)ʻ &'"6ʻ $'(ʻ * ")ʻ")&ʻ ,,&$,+6ʻ 8ʻ $'?6ʻ #8ʻ =DO2 33GD/ʻ
")&ʻ E)#-&ʻ#8ʻ")&ʻ +$ (ʻ &'" 2#Gʻ //D2/Eʻ .ʻ 2#F

ʻ 5,#4 (&(ʻ $-+#6ʻ $'(ʻ@&ʻ "ʻ81,")&,ʻ&'$!"&(ʻ)$"ʻ $--ʻ $'(ʻ &4&,?ʻ = 4"3Eʻ .ʻ Hʻ
")&ʻ5&,+#'ʻ #,ʻ5&,+#'+ʻ*)#ʻ$,&ʻ#,ʻ8#,ʻ")&ʻ %&ʻ@& ' .ʻ+)$--ʻ@&ʻ&'" "-&(ʻ"#ʻ "#$ $'(=D!ʻ
")&ʻ &4&,+ #'ʻ &92&!"$'"ʻ #'ʻ")&ʻ &,%ʻ .,$'"&(ʻ@?ʻ")&ʻ+$ (ʻ &$+&ʻ+)$--ʻ 7'",?,&+&,4&(
$'(ʻ%$?ʻ)$4&ʻ$'(ʻ1+&ʻ$'(ʻ&9&,! +&ʻ$--ʻ")&ʻ+$%&ʻ .)"+ʻ#8ʻ !" #'ʻ $'(ʻ +#'+ʻ&% &(
&B&'",?6ʻ$'(ʻ$--ʻ#")&,ʻ .)"+ʻ$'(ʻ &%&(&+ʻ*)$"+#&4&,6ʻ$+ʻ$.$ '+"")&ʻ "#ʻ")&ʻ=DFD/ʻ
&+ (1&ʻ#8")&ʻ5,#2&,"?ʻ!#%2, +&(ʻ ʻ")&ʻ+$ (ʻ &$+&ʻ*) !)ʻ+)$--ʻ#,ʻ%$?ʻ +#"ʻ &92&!B
'#"ʻ @&ʻ "$:&'ʻ #,ʻ 1+&(ʻ 8#,ʻ")&ʻ51,2#+&+ʻ #8ʻ ") +ʻ !"6ʻ $'(ʻ $--ʻ 5&,+#'+ʻ
*)#%+#&4&,ʻ *)#ʻ $,&ʻ #,ʻ %$?ʻ@&ʻ '"&,&+"&(ʻ ")&,& 'ʻ 1'(&,ʻ ")&ʻ +$ (ʻ
&$+&6ʻ8#,ʻ$'(ʻ 'ʻ ,&+2&!"ʻ#8ʻ$'?ʻ #'2$?%&'"ʻ#8ʻ")&ʻ+$ (ʻ &'"6ʻ#,ʻ$'?ʻ
5$,"ʻ")&,&#8ʻ"#ʻ@&ʻ$22#," #'&(ʻ ʻ/ʻ8 9&(ʻ")&,&#'ʻ@?ʻ4 ,"1&ʻ#8ʻ") +ʻ !"6
#,ʻ$'?ʻ ,,&$,+ʻ")&,&#86ʻ#,ʻ8#,ʻ#,ʻ 'ʻ ,&+2&!"ʻ#8ʻ$'?ʻ ,&$!)ʻ'ʻ,ʻ #'2&,N
8#,%$'!&ʻ#8ʻ$'?ʻ#8ʻ")&ʻ #4&'$'"+ʻ#,ʻ #'("#'+ʻ!#'"$ '&(ʻ 'ʻ")&ʻ+$ (ʻ
&$+&6ʻ$'(ʻ#")&,* +&6ʻ"#ʻ$--ʻ '"&,&+"ʻ$'(ʻ51,2#+&+ʻ$+ʻ 8ʻ")&ʻ+$ (ʻ &$+&ʻ
)$(ʻ@&&'ʻ#, .'$--?ʻ .,$'"&(ʻ#8ʻ+1!)ʻ &+ (1&ʻ#8ʻ")&ʻ+$ (ʻ5,&% +&+ʻ $"ʻ
")&ʻ +$ (ʻ &'"ʻ #8ʻ '&ʻ)1'(,&(ʻ $'(ʻ& .)"?B+ 9ʻ 5#1'(+6ʻ #,ʻ $"ʻ +1!)ʻ
$22#," #'&(ʻ5$,"ʻ")&,&#86ʻ 8ʻ $'?ʻ+1!)ʻ 22#," #'%&'"ʻ +)$--ʻ@&ʻ %$(&66ʻ
$'(ʻ +1@>&!"ʻ"#ʻ+1!)ʻ #4&'$'"+ʻ$'(ʻ #'("#'+ʻ$22-? ' .ʻ &9!-1+ 4&-?ʻ
"#ʻ +1!)ʻ &+ (1&ʻ #8ʻ ")&ʻ +$ (ʻ5,&% +&+ʻ $'(ʻ 8ʻ $"ʻ ")&ʻ %&ʻ #8ʻ ")&ʻ
2$++ ' .ʻ#8ʻ") +ʻ !"ʻ")&,&ʻ+)$--ʻ)$4&ʻ$!!,1&(ʻ$'(ʻ@&ʻ (1&ʻ$'?ʻ ,,&$,ʻ
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@ 3#DEEDE 4 F #4 .27ED ?F GD#HD 026 OD C/ ^ EDH I3DG [aI#E" OD#3

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#\ I E 3 #E 3 ODC/D ' ED/FDG 2E = D ' O%% G F ' GD# HD '

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+$ (' #%% ++ #'&,+6' ")&,' ' '.' '&&,+6' 88 !&,+6' .&'"+6' &,4$'"+6' #,' D/E' 2E' 3 ' * 2^
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#,ʿ 3&%$'(+ʿ *) !)ʿ !$''#"ʿ#,ʿ+)$--ʿ '#"ʿ @&ʿ $+! E"$ '&(6ʿ .#"ʿ '6ʿ 2$ (ʿ #886ʿ
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22- !$" #'ʿ @&ʿ -$ (ʿ #1"ʿ @?ʿ ,(&,ʿ #8ʿ ")&ʿ +$ (ʿ #1,"6ʿ %$(&ʿ 'ʿ $
+1%%$,?ʿ E$?6ʿ ")&ʿ 51,!)$+&ʿ #8ʿ #")&,ʿ $'(+6ʿ &'&%&'"+6ʿ #,ʿ &,&N
("$%&'"+6ʿ *) !)ʿ +)$--ʿ @&ʿ !#'4&?&(6ʿ - % "&(6ʿ $'(ʿ +&""-&(ʿ "#6ʿ 8#,6ʿ $'(ʿ
12#'ʿ +1!)ʿ $'(ʿ")&ʿ - :&ʿ V+&+6ʿ ,1+"6ʿ '"&'"+6ʿ $'(ʿ 51,2#+&+6ʿ $'(ʿ 'ʿ
")&ʿ +$%&ʿ $'&,ʿ $+ʿ")&ʿ $'(+ʿ #,ʿ &,&("$%&'"+ʿ ,&+2&!"ʿ *)&,&#8ʿ
+1!)ʿ 51,!)$+&ʿ #'&?6ʿ #%2&'+$" #'6ʿ #,ʿ $" +8$!" #'ʿ +)$--ʿ)$4&ʿ @&&'ʿ
2$ (6ʿ +"##(ʿ+&""-&(ʿ#,ʿ- % "&(6ʿ#,ʿ+1!)ʿ#8ʿ")&%ʿ $+ʿ$"ʿ")&ʿ %&ʿ #8ʿ%$: '.ʿ
+1!)ʿ #'4&?$'!&ʿ $'(ʿ &""-&%&'"ʿ +)$--ʿ @&ʿ &9 +" '.ʿ $'(ʿ '1'(&"&,% '&(ʿ
#,ʿ !2@-&ʿ #8ʿ$: '.ʿ &88&!"ʿ 'ʿ ")&ʿ %&$'" %&6ʿ $'(ʿ 1'" -ʿ +1!)ʿ 51,!)$+&ʿ
!$'ʿ @&ʿ %$(&6ʿ")&ʿ +$ (ʿ #'&?ʿ %$?ʿ @?ʿ ,(&,ʿ #8ʿ")&ʿ +$ (ʿ #1,"6ʿ 12#'ʿ
22- !$" #'ʿ")&,&"#6ʿ @&ʿ '4&+"&(ʿ @?ʿ")&ʿ +$ (ʿ !!#1'"$'"ʿ H&'&,$-ʿ '
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L B ʿ ʿ (2CTVʿ Q

) +ʿ $%&ʿ 'ʿ ")&ʿ 51,!)$+&ʿ #8ʿ),&&ʿ 5#1'(+ʿ ʿ *ʿ #'+#- N
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H#4&,'%&'"#,ʿ &$-ʿ &!1,"&+ʿ $'(ʿ 'ʿ ")&ʿ %&$'" %&6ʿ $'(ʿ F'" -ʿ +1!)ʿ
''1"&+ʿ #,ʿ &!1,"&+ʿ +)$--ʿ @&ʿ #,(&,&(ʿ @?ʿ ")&ʿ +$ (ʿ #1,"ʿ "#ʿ @&ʿ
+#-(ʿ 8#,ʿ ")&ʿ 51,2#+&+ʿ $8#,&+$ (6ʿ #,ʿ +)$--ʿ @&ʿ !$--&(ʿ 'ʿ #,ʿ !$'!&--&(6ʿ
")&ʿ 3 4 (&'(+ʿ #,ʿ '"&,&+"ʿ $'(ʿ $''1$-ʿ 5,#(1!&ʿ ")&,&#8ʿ +)$--ʿ 8,#%ʿ
%&ʿ "#ʿ %&ʿ @?ʿ ,(&,ʿ #8ʿ ")&ʿ +$ (ʿ #1,"ʿ @&ʿ 2$ (ʿ "#ʿ ")&ʿ 5$,"?ʿ *)#ʿ
*#1-(ʿ 8#,ʿ ")&ʿ %&ʿ @& '.ʿ)$4&ʿ @&&'ʿ &'" "-&(ʿ "#ʿ ")&ʿ &'"+ʿ $'(ʿ 5,#8"+ʿ
#8ʿ +1!)ʿ $'(+6ʿ &'&%&'"+6ʿ #,ʿ &,&("$%&'"+ʿ +#ʿ "#ʿ @&ʿ 21,!)$+&(ʿ $'(ʿ
+&""-&(

ʿ 5,#4 (&(ʿ $-*$?+6ʿ $'(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ *)&,&ʿ $'?ʿ CC7 H23 #ʿ
iP #'&?ʿ +#ʿ $.,&&(ʿ #,ʿ $*$,(&(ʿ "#ʿ @&ʿ 2$ (ʿ $+ʿ)&,& 'B@&8#,&ʿ %&'" #'&(ʿ (0 CD#ʿ
+)$--ʿ)#"ʿ &9!&&(ʿ ")&ʿ 1%ʿ #8ʿ *&'"?ʿ 5#1'(+6ʿ ")&ʿ +$%&ʿ +)$--ʿ @&ʿ 2$ (ʿ '#" 7
"#ʿ ")&ʿ ,&+2&!" 4&ʿ 5$,"&+ʿ *)#ʿ *#1-(ʿ 8#,ʿ ")&ʿ %&ʿ @& '.ʿ)$4&ʿ @&&'ʿ HDDG #4 U7 ʿ
&'" "-&(ʿ "#ʿ ")&ʿ &'"+ʿ $'(ʿ 5,#8"+ʿ #8ʿ ")&ʿ $'(+ʿ #,ʿ &,&("$%&'"+ʿ +#
"$:&'ʿ #,ʿ 1+&(ʿ 8#,ʿ ")&ʿ 51,2#+&+ʿ #8ʿ ") +ʿ !"6ʿ #,ʿ 'ʿ ,&+2&!"ʿ #8ʿ *) !)ʿ
+1!)ʿ #%2&'+$" #'ʿ #,ʿ $" +8$!" #'ʿ +)$--ʿ @&ʿ 2$ (6ʿ 8#,ʿ ")&,ʿ #*'ʿ V+&ʿ
$'(ʿ &'&8 "ʿ #,ʿ 'ʿ !$+&ʿ #8ʿ #4&,"1,&6ʿ '8$'!?6ʿ (#"!?6ʿ 1'$!?6ʿ #,ʿ
#")&,ʿ '!2! "?6ʿ ")&'ʿ +1!)ʿ #'&?ʿ +)$--ʿ @&ʿ 2$ (ʿ "#ʿ ")&,ʿ ,&+2&!" 4&ʿ
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$'(ʿ &'&8 "ʿ #8ʿ ")&ʿ 5$,"&+ʿ ,&+2&!" 4&-?ʿ &'" "-&(ʿ ")&,&"#

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ 'ʿ !$+&ʿ $" ?ʿ 5$,"?ʿ "#ʿ #ʿ H2EDʿ .ʿ
*)#%ʿ $'?ʿ #'&?ʿ +)$--ʿ @&ʿ $.,&&(ʿ #,ʿ $*$,(&(ʿ "#ʿ @&ʿ 2$ (ʿ 8#,ʿ ")&ʿ
51,!)$+&ʿ #8ʿ $'?ʿ $'(+ʿ #,ʿ 5-&,&("$%&'"+ʿ "#ʿ @&ʿ "$:&'ʿ #,ʿ 1+&(ʿ 1'(&,ʿ @ 2$ 77
#,ʿ @?ʿ 4 ,"1&ʿ #8ʿ ")&ʿ 5#*&,+ʿ #8ʿ ") +ʿ !"6ʿ #,ʿ $'?ʿ +"$"&ʿ #,ʿ '"&,&+"ʿ #3 ʿ3"D 2#]ʿ
")&,& '6ʿ #,ʿ 8#,ʿ ")&ʿ 9" '.1 +)%&'"ʿ #8ʿ ")&ʿ +$ (ʿ &'"ʿ #,ʿ $'?ʿ 5$,"
")&,&#86ʿ #,ʿ 8#,ʿ #%2&'+$" #'ʿ #,ʿ $" +8$!" #'ʿ $+ʿ $8#,&+$ (6ʿ +)$--ʿ ,&81+&ʿ
"#ʿ $!!&2"ʿ ")&ʿ +$%&6ʿ #,ʿ !$''#"ʿ @&ʿ 8#1'(6ʿ #,ʿ +)$--ʿ @&ʿ $@+&'"ʿ 8,#%ʿ
. ʿ #,ʿ +)$--ʿ ,&81+&6ʿ '&.-&!"6ʿ #,ʿ @&ʿ 1'$@-&ʿ "#ʿ %$:&ʿ $ʿ "-&ʿ "#
+1!)ʿ $'(+ʿ #,ʿ &,&("$%&'"+6ʿ +"$"&ʿ #,ʿ '"&,&+"6ʿ "#ʿ ")&ʿ $" +8$!" #'ʿ
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!"ʿ #,ʿ 8ʿ $'?ʿ 5$,"?ʿ &'" "-&(ʿ "#ʿ !#'",$!"ʿ #,ʿ $.,&&ʿ 8#,ʿ ")&ʿ $-&ʿ #8ʿ +1!)ʿ
$'(+ʿ #,ʿ &,&("$%&'"+6ʿ +"$"&ʿ #,ʿ '"&,&+"6ʿ +)$--ʿ '#"ʿ @&ʿ :'#*'6ʿ
#,ʿ +)$--ʿ @&ʿ $@+&'"ʿ 8,#%ʿ . ʿ #,ʿ +)$--ʿ ,&81+&ʿ "#ʿ &9&!1"&ʿ $'?ʿ
2,#2&,ʿ #'",$!"ʿ #,ʿ .,&%&'"ʿ 8#,ʿ ")&ʿ $-&ʿ ")&,&#8ʿ ,&+2&!" 4&-?ʿ ʿ ")&'ʿ
$'(ʿ 'ʿ &4&,?ʿ +1!)ʿ $+&6ʿ *)&,&ʿ '#"ʿ #")&,*ʿ +&ʿ 2,#4 (&(ʿ 'ʿ ") +ʿ !"6ʿ
"ʿ +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ "#ʿ #,(&,ʿ ")&ʿ #'&?ʿ +#
$.,&&(ʿ #,ʿ $*$,(&(ʿ $+ʿ $8#,&+$ (ʿ "#ʿ @&ʿ 2$ (ʿ '"#ʿ ")&ʿ $':ʿ #8ʿ . ʿ
'ʿ ")&ʿ $%&ʿ $'(ʿ *)ʿ ")&ʿ 5, 4 "?ʿ #8ʿ ")&ʿ !!#1'"$'"ʿ H&'&,$-ʿ #8ʿ ")&ʿ
+$ (ʿ #1,"ʿ #8ʿ)$'!&,?6ʿ "#ʿ @&ʿ 2-$!&(ʿ "#ʿ ")&ʿ !!#1'"ʿ "#ʿ ")&ʿ ,&("#8
")&ʿ 5$,"&+ʿ '"&,&+"&(ʿ 'ʿ ")&ʿ +$ (ʿ $'(+ʿ #,ʿ &,&("$%&'"+ʿ +"$"&ʿ #,ʿ
'"&,&+"6ʿ X(&+!,@ '.ʿ ")&ʿ +$%&ʿ +#ʿ 8$,ʿ $+ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ !$'ʿ
(#6[ʿ +1@>&!"ʿ "#ʿ ")&ʿ #'",#-ʿ $'(ʿ 3 +2#+ "#'ʿ #8ʿ ")&ʿ +$ (ʿ #1,"6ʿ *) !)ʿ
+$ (ʿ #1,"6ʿ #'ʿ ")&ʿ 22- !$" #'ʿ #8ʿ $'?ʿ 5$,"?ʿ %$: '.ʿ !-$ %ʿ "#ʿ +1!)ʿ
#'&?ʿ #,ʿ "#ʿ $'?ʿ 5$,"ʿ ")&,&#8ʿ @?ʿ 5&" "#'ʿ #'6ʿ +ʿ)&,&@?ʿ &%2#*&,&(ʿ "#ʿ $
+1%%$,?ʿ E$?ʿ #8ʿ 5,#!&&('.6ʿ #,ʿ #")&,*ʿ +&6ʿ $+ʿ "#ʿ ")&ʿ +$ (ʿ #1,"ʿ +)$--
+&&%6ʿ %&&"6ʿ "#ʿ #,(&,ʿ ")&ʿ +$%&ʿ "#ʿ @&ʿ -$ (ʿ #1"ʿ $'(ʿ '4&+"&(ʿ 'ʿ ")&
51@- !ʿ 1'(+6ʿ #,ʿ 'ʿ H#4&,'%&'"ʿ #,ʿ &$-ʿ &!1,"&+6ʿ $'(ʿ "#ʿ #,(&,ʿ
3 +", @1" #'ʿ ")&,&#86ʿ #,ʿ 5$?%&'"ʿ #8ʿ ")&ʿ 3 4 (&'(+ʿ #,ʿ '"&,&+"ʿ ")&,&#8ʿ
$!!#,('.ʿ "#ʿ ")&ʿ +"$"&6ʿ "-&6ʿ #,ʿ '"&,&+"ʿ #8ʿ ")&ʿ 5$,"?ʿ %$: '.ʿ !-$ %ʿ
")&,&1'"#6ʿ $'(ʿ "#ʿ %$:&ʿ +1!)ʿ #")&,ʿ ,(&,ʿ 'ʿ ")&ʿ 5,&% +&+ʿ $+ʿ "#ʿ ")&
+$ (

Q Q L' ' L' B' ' (2C TVN

+$ (#1,"+)$--' +&&%' 2,#2&,' $'(")&' $+) &,'#8'")&' $':'#8'.
*)#' +)$--' ,&!& 4&' +1!)' #'&?' +')&,&@?' ,&C1 ,&(' "#' . 4&' "#' ")&'
+$ (' #")% ++ #'&,+6' #,' "#' $'?' 5$,"?' 2$? '.' $'?' #'&?' '"#' ")&'
$':'#8'. ' 1'(&,'#,'21,+1$'' "#' ") + !"6' $' &!& 2"' 8#,' +1!)'
#'&?6' %&'"#' '.' $'(' +2&! 8? '.' ")&,& '' 8#,' *)$"' $'(' 8#,' *)#+&'
V+&' X(&+!, @&(' $+' $8#,&+$ (e' ")&' +$%&' +' ,&!& 4&(

5&,+#'+' '' 2#++&++ #'' 2,&+ ''2" ; ' 4' & ""-&!8

< ' 5,#4 (&(' $-*$?+6' $'('@&' ''81,")&,'&'$!"&(')$"' *)&,&' $'?'
T1&+" #'' +)$--' $, +&' "#1!) '.' ")&' "-&' #8' $'?' 5&,+#'' "#' $'?' #'&?'
"#' @&' 2$ (' '"#' ")&' $':'#8'. ' '' 21,+1$'!&' #8' ") +' !"6' 8#,'
")&' 51,!)$+&' #86' #,' $+' #%2&'+$" #'' #,' $" +8$!" #'' 8#,' $'?' 3$%$.&'
#,' '>1 B?' "#' $'?' $'(+' #,' &,&("$' &'"+6' #,' #8' $1?' +"$"&6' .)"6'
"-&6' #,' '"&,&+"' '' $'?' $'(+' #,' &,&("$%&'"+' "#' @&' 21,!)$+&(6'
"$:&'6' #,' 1+&(' '' 21,+1$'!&' #8' ") +' !"6' ,' 8#,' ")&' 9" '.1 +)%&''
#8' ")&' +$ (' &'' #,' $'?' 5$,'' ")&,&#86' #,' "#' $'?' ''1 " &+' #,' &!1,'
, " &+' "#' @&' 21,!)$+&(' * ")' $'?' +1!)' #'&?' $+')&,& '' %&'" #'&(6'
#,' "#' ")&' 3 4 (&'(+' #,' '"&,&+"' #8' $'?' +1!)' ''1 " &+' #,' &!1, " &+'
#,' "#' $'?' 5$,"' #8' +1!)' #'&?6' ''1 " &+6' &!1, " &+6' 3 4 (&'(+6' #,'
'"&,&+"' ,&+2&!" 4&-?6' ")&' 5&,+#'+' *)#' +)$--')$4&' @&&'' '' 2#++&++ #''
#8' +1!)' $'(+' $'(' &,&("$%&'"+6' #,' #8' ")&' &'"+' $'(' 5,#8 "+' ")&,&#86'
$"' ")&' %&' 8,#%' *) !)' +1!)' 51,!)$+&' ")&,&#8' +)$--' "$:&' &88&!"6'
#,' $"' ")&' %&' *)&'' +1!)' 3$%$.&' #,' '>1,?' +)$--')$4&' #!!1,,&(6' $'('
$--' 5&,+#'+' !-$ % '.' 1'(&,' +1!)' 5&,+#'+6' #,' 1'(&,' #,' !#'+ +"&'"-?'
* ")' ")&' 5#++&++ #'' #8' +1!)' 5&,+#'+6' +)$--' @&' (&&%&(' "#')$4&'
@&&'' -$*81--?' &'" "-&(' "#' +1!)' $'(+' #,' &,&("$%&'"+' $!!#,('.' "#'
+1!)' 5#++&++ #'6' 1'" -' ")&' !#'"',$,?' +)$--' @&' +)#*'' "#' ")&' $" +8$!" #''
#8' ")&' +$ (' #1,"' $'(' ")&' 3 4 (&'(+' #,' '"&,&+"' '8' ")&' ''1 " &+'
#,' &!1, " &+' "#' @&' 21,!)$+&(' * ")' +1!)' #'&?6' $'('$-+#' ")&' $2 "$-'
#8' +1!)' ''1 " &+' #,' &!1, " &+6' +)$--' @&' 2$ (6' $22- &(6' $'(' (+2#+&('
#8' $!!#,('.-?6' 1'-&++' '' +)$--' @&' %$(&' "#' $22&$,' "#' ")&' $" +8$!" #'' #8'
")&' +$ (' #1,"' ")$"' +1!)' 5#++&++ #'' *$+' $' *,#'.81-' 5#++&++ #'6' $'('
")$"' +#%&' $'(' *)$"' #")&,' 5&,+#'' #,' 5&,+#'+' *&,&' -$*81--?' &'" "-&(' "#' +1!)' #,' "#' +#%&' $'(' *)$"' 5$,"' #8' +1!)' $'(+' #,' &,&N
("$%&'"+6' #,' "#' +#%&' $'(' *)$"' +"$"&' #,' '"&,&+"' ")&,&

(.1/3' 026' #82&" "#' 3' OD' C2 OF' (0# E' B #D/E

< ' 5,#4 (&(' $-+#6' $'(' @&' '' 81,")&,'&'$!"&(')$"' E)&,&' ")&'
7B 77$+&' #'&?' 8#,' $'?' $'(+' #,' &,&("$%&'"+' "#' @&' "$:&'' #,' 1+&('
51,2#+&+' #8' ") +' !"6' #,' ")&' #'&?' 2$ (' 8#,' $'?' +1!)' #%B
2&'+$" #'' #,' $" +8$!" #'' $+' $8#,&+$ (6' +)$--' @&' 2$ (' '"#' ")&' $':'#8'
. ' 1'(&,' #,' '' 21,+1$'!&' #8' ") +' !"6' '' +)$--' @&' -$*81-' 8#,'
")&' +$ (' #1,"' "#' #,(&,' ")&' #+"+6')$,.&+6' $'(' 92&'!&+' #8' $'('
$""&'(' '.' $'?' +1!)' 5&" "#'' #,' 22- !$" #'' $+' $8#,&+$ (' $'(' ")&'
5,#!&&('.+' "#' @&')$(' ")&,&#'6' X"#' @&' $+!&,"$ '&(' $+' @&" *&&'' #-N
! "#,' $'(' -&'"6' 8' ")&' +$ (' #1,"' +)$--' ") ':' 8 "6[' #,' +#' %1!)' #8'
+1!)' 92&'!&+' $+' ")&' +$ (' #1,"' +)$--' (&&%' ,&$+#'$@-&' 1'(&,' ")&'
,!1%+"$'!&+' #8' ")&' $+&6' "#.&")&,' *")' ")&' '&!&++$,?' #+"+' $'('
)$,.&+' #8' #@"$ '.' +1!)' ,(&,6' "#' @&' 2$ (' @?' ")&' +$ (' #%% +N
+ #'&,+6' *)#' +)$--' 8,#%' %&'"#' %&' 2$?' +1!)' 1%+' #8' #'&?' 8#,'
+1!)' 51,2#+&+' $+' ")&' +$ (' #1,"' +)$--' (,&!"

2#GE' 4 FD#' #' &H"2#4D' 3' OD' ED337DG' 3' 3"D' E2OD

< ' 5,#4 (&(' $-+#6' $'(' @&' ''81,")&,'&'$!"&(')$"' '' !$+&' $'?'
>77'(+6' &'&%&'"+6' #,' &,&("$%&'"+' +)$--' @&' $.,&&(' "#' @&' . 4&'' @?'
")&' +$ (' #%% ++ #'&,+' '' #,' @?' *$?' #8' #%2&'+$" #'6' C1 4$-&'"6' #,
/' $" +8$!" #'

L B (2CTV Q

$" +8$!" #' 8#, $'?#8")&' $'(+$'(' &,&("$%&'"+ "# @& 21,!)$+&(' EDE 2E 3 ED
1'(&, ")& 1")#, "?$'(' 8#, ")& 51,2#+&+ #8") +B !"6 ")& $'(+6
&'&%&'"+6 $'(' &,&("$%&'"+ +# "# @& . 4&' +)$-- @& !#'4&?&(6
- % "&(6 $'(' +&""-&(' "#6 8#,6 $'(' 12#' +1!)$'(' ")& - :& V+&+6 ,1+"+6 \
'"&'"+6 $'(' 51,2#+&+6 $'(' ' ")& +$%& $''&,6 $+ ")& $'(+ #,
&,&("$%&'"+ 8#, #, ' ,&+2&!' #8")& 51,!)$+& *)&,&#8 ")& +$%&
+)$-- @& . 4&' +"##(' +&""-&(' #, - % "&('$" #, %%&($"&-? @&8#,& ")&
2$++ '. #8") + !"6 #, +1!)' #8")&%' $+ $' ")& %& #8%$: '. +1!)
#'4&?$'!& $'(' &""-&%&'" +)$-- @& &9 +" '. - '(&"&,% '&('#, !2@-&
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< '(' *)&,&$+ " + '&!&++$,?$'(B &92&(&'"6 8#,")& .,&$"&, ZD/ 3 /D^
%2,#4&%&'" $'(' &!1, "?#8")& $4 .$"#' #8")& +$(' 4&, ' O FD 2#G
8,#'" #8 $'(' '&$, "# ")& +$(' 3#!:?$,(6 "# $@$"& $'(' 2,&4&'" +1!) C/DFD#3 'O^
#")&, %@$':%&'"+ #, @+",1!"#'+ *) !)' (# #, %$?"&' ('"# %2&(& E3/IH3 #E
")& 8,&& 1,,&'" #8")& E$"&,6 #, "# #!!$+ #' $'? 3&2#+ " #, !!1N 27 #4 3"D
%1-$"#' #8 1('#, #")&, $""&, ' 8,#'" #8 ")& +$(' 3#!:?$,(6 $+ I3"D/#
&9 +" #, %$? $, +& "# @& #!!$+ #'&(' $-#'. ")& #1")&, ' $': #, " /D .'3"D
)#,& #8")& +$(' 4&, "# ")& E&+"*$,('#8")& +$(' 3#!:?$,('*") ' = FD/ Z 3" #
!&,"$ ' % "+ @& " ")&,&8#,& 81,")&, &'$!"&(')$" " +)$-- @& VU $,(+
-$*81-6 8#, ")& +$(' #%% ++#'&,+6 $'(' ")&, ' . '&&,+ $'(' #")&, @DE3 .
88 !&,+6 E#,:%&'6 $'(' &,4$'"+$!" '.'1'(&,")&, 1")#, "?6 #, $'? #4aE
#8")&%6 $" $'? %&6 $'(' 8,#% %& "# %& $" $-- %&+ 8,#% $'(' E)$,8
$8"&, ")& 2$++ '. #8") + !"6 "# &'"&, '"# $'(' 12#' $'('"$:& 2#+N
+&++ #' #86 $'(6 *")' ")& #'+&'"#8")& $?#, #8")& "?#8 '
8#, ")& %& @& '.6 $+ #'+&,4$"#, #8 ")& +$(' 4&,6 ' E , " '. 8#,
")$" 51,2#+& 8 ,+")$(' $'(' #@"$ '&(6 "# (&%#- +)6 ,&%#4&6 $'(' -$?
#2&'"#")& -#*$'(' &8-#*#8")& 4&,6 $'('"# 4$,?#,$-"&,")& '&6
5#+ "#'6 -#2&6 #, #'+",1!"#' #8 $-- #,A$'? 5$," #, 5$,"& #8 $'?
$'(6 4&, E$--6 ,&$+"*#,:6 %@$':%&'6 ,&!"#'6 #, 1 -('.
*)$"+#&4&,6 $'(' "# (.6 !1"6 &9!$4$"&6 $'(' ,&%#4&6 $'(' $-+# "# &%@$':
$'(' 8 - '6 $'(' "# (&2#+ "6 -$?6 $'(' *#,:6 $'? "#'&6 1@@-&6 H,#1" '.6
H,$4&-6 #, #")&, $"&, $-+ #,) '.+ *)$"+#&4&,6 12#' #4&,6 #, '"#
$'? 5$," #, 5$,"+ #8")& $': #,)#,& H,#1'(#' ")& #1")&, (&
#8")& +$(' 4&,6 *) !)' + #, $,& +"1$"& #,-? '.6 #, *) !)' +)$-- #,
%$? @& %$(& #, #!!$+ #'&(#, $, +&6 *") ' ")& 3 +"$'!& #8),&&
)1'(,&($'(' 8 8"? $,(+ E&+"*$,(+ 8,#% ")& E&+"&," 9",&% "?#8")&
+$(' E)$,8 !$--&(' F / '+1!)' $''&,$+ ")& +$(' #%% +N
+#'&,+ +)$-- (&&% '&!&++$,?#, $(4 +$@-& 8#, &88&!" '.")& @>&!"+ $'(
51,2#+&+ #8")& 5#*&,+)&,&@?. 4&'6 ")&? ")& +$(' #%% ++#'&,+6
")&, '. '&&,+6 88 !&,+6 E#,:%&'6 $'(' &,4$'"+6 (# '. $+ - ""-&
3$%$.& $+ %$? @& ' ")& 9&!1"#' #8")& 5#*&,+ "# ")&%' @?") +
2,&+&'" '$!"%&'" .,$'"&(6 $'(' ")& +$(' #%% ++#'&,+6 $" ")&
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' #, @?")& 9&!1"#' #8 $-- #, $'? #8 +1!)' -$+"B%&'"#'&(
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< ' '(' @&' "' 81,")&,' &'$!"&(')$"' "' +)$--' $ >(' "'$?' @&' -$*81-' R@,' ")&' 2,#2&,' 88 !&,+' #8' 9! +&' '' P' * ") '' " &,' ,&+2&!" 4&' 3 +N ", !"+6' "#' . ,$'"6' 1'(&,' ")&' 5,#4 + #'+' #8' ")&' +$ (' ,&! "&(' !"6' $' !&'!&' #,' !&'!&+' 8#,' ")&' $-&' #8' &&,6' (&,6' $'(' 2 , "+6' "#' +&--' '' ' @?' &"$ -6' '' $'?' #1+&' +2&! 8 &(' '' +1!)' !&'!&6' &&,6' (&,6' $'(' 2 , "+' ,&+2&!" 4&-?6' "#' @&' !#'+1%&(' '' +1!)' #1+&' #,' &-+&*)&,&6' " ' $'?' 5&,+#'6' ")#1.)' '#' - !&'+&(' ")&' &$,' 2,&!&(' ' .6' *)#%' ")&' R1+N " !&+' #8' ")&' 5&$!&' 8#,' ")&' "?6' #* '6' #1'"?6' #,' 3 +", !"' * ") '' *) !)' +1!)' #1+&' +' + "1$"&6' '' T1$,"&,' &++ #'+' $++&%@-&(' $+')&,& 'N @&8#,&' 2,#4 (&(6' +)$--' '#" (&&%' %2,#2&,' "#' '",1+"' * ")' +1!)' !&'!&6' $'(' "#' *)#%' ")&?' +)$--' '#"6' @?' ,(&,' ")&,&' %$(&6' 2,#) @ "' +1!)' !&'!&' "#' @&' ++1&(6' 12#'' ")&' 5&,+#'' $22-?' ' .' 8#,' +1!)' !&'!&' 2,#(1! ' .' +1!)' &," 8 !$"&' $+' $8#,&+$ (' "#' +1!)' 88 !&,' #8' 9! +&6' $'(' !#%2-?' ' .' * ")' ")&' #")&,' #'(' "#'+' #8' ") +' !"6' $'(' 12#'' ")&' 9&!1N "#'' @?' +1!)' 5&,+#'' $'(') +' 1,&" &+' #8' ")&' #'(')&,& 'B$8"&,' %&'N "#'&(6' +1!)' 5&,+#'' 8 ,+' 2$? ' .' 8#,' +1!)' !&'!&' #,' !&'!&+' ")&' 31" &+' #8' 9! +&' 8#,' $'(' '' ,&+2&!' #8' +1!)' !&'!&' #,' !&'!&6' $!!#,(' .' "#' ")&' $"&' $'(' '' ")&' $''&,' 2,&+!, @&(' @?' ")&' +$ (' ,&! "&(' !"6' #,' $'?' #")&,' !"' #,' !"+' ")&'' '' 8#,!&' * ")' ,C+2&!' "#' +1!)' !&'!&+

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' '(' @&' "81,")&,' &'$!"&(')$" &4&,?' 5&,+#'' *)#' +)$--' #@"$ '' +D/E #E'
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")&' #1+&' *)&,&' +#-(6' +)$--6' * ") '' 9' 3$?+' '&9" $8"&,')&' +)$--')$4&' HD#HDE'
+#' #@"$ '&(' +1!)' !&'!&6' (&- 4&,' #,' !$1+&' "#' @&' (&- 4&,&(' "#' ")&' -&, :' E"277' D#3D/'
#8' ")&' 5&$!&' 8#,' ")&' #1'"?6' "?6' #,' #*'' * ") '' *) !)' ")&' #1+&' 3"D /') 2 O DE'
+2&! 8 &(' '' +1!)' !&'!&' +)$--' @&' + "1$"&6' $' #"&' '' E , " ' .6' 1'(&,' Z 3"' 3"D'
")&' $'(' #8' +1!)' 5&,+#''6' #,' 1'(&,' ")&' $'(' #8' +#%&' 5&,+#'' @?') %' (7D/]' .' 3"D'
$1")#, L&(' '' ")$" &)$-86' '' *) !)' +)$--' @&' +2&! 8 &(6' +&" 8#,")6' $'(' +D2HD
'+&,"&(' ")&'), +" $'' $'(' 1,'$%&' $'(' 5-$!&' #8' @#(&' #8' +1!)'
5&,+#''6' $'(' $' 3&+!, 2" #'' #8' ")&' #1+&' $'(' 5,&% +&+' ''*) !)' 2 , "+6'
&&,6' #,' (&,' $,&' - !&'+&(' "#' @&' +#-(' @?' +1!)' 5&,+#''6' $'(' ")&' 5-$!&'
*)&,&' +1!)' #1+&' $'(' 5,&% +&+' +)$--' @&' + "1$"&6' "#.&")&,' * ")' ")&'
), +" $'' $%&' $'(' 1,'$%&' $'(' ")&' !!12$" #'' #,' 5,#8&++ #'' $'('
$!"1$-' &+ (&'!&' #8' &$!)' #8' ")&' 5&,+#'+' *)#' +)$--')$4&' @&!#%&' 1,&N
" &+' 8#,' +1!)' - !&'+&(' 5&,+#'' $'(' +1!)' - !&'+&(' 5&,+#'' +)$--' 2$?' #,'
!$1+&' "#' @&' 2$ (' "#' +1!)' -&, :' #8' ")&' 5&$!&' ")&' 1%' #8' *#') -- ' .+'
$'(' 92&'!&' $'(' 8' $'?' 5&,+#'' *)#' +)$--')$4&' #@"$ '&(' +1!)'
!&'!&' $+' $8#,&+$ (' +)$--' '#"6' * ") '' ")&' %&' $'(' '' ")&' $''&,'
)&,& 'B@&8#,&' (,&!"&(6' (&- 4&,' #,' !$1+&' "#' @&' (&- 4&,&(' +1!)' #"&' ''
E , " ' .' $+' $8#,&+$ (6' &4&,?' +1!)' 5&,+#'' +)$--' 8#,8&" $'(' -#+&' ")&'
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$ ' L B ' ' (2C

=D4 E3D/' .' HD#HDE' 3 ' OD']DC3' O6' 3"D' (7D/]' .' 3"D' +D2HD

' '(' @&' "' 81,")&,' &'$!"&(6' ' +"' #,' &. +"&,' #8' &4&,?' !&'!&' +#' "#')&6' .,$'"&(' 8#,' +&-- '.' @?' &"$ -' $'?' &&,6' (&,6' #,' 5&,,?6' #,' 2 , "+6' "#' @&' (,$':' #,' !#'+1%&('#'' ")&' 5,&% +&+6' 2&! 8? '.' ")&' $%&' $'(' 5-$!&' #8' @#(2' #8' &4&,?' 5&,+#'' - !&'+&(6' $'(' #8' &$!)' #8') +' 1,&" &+6' $'(' ")&' 3&+!, 2" #'' $'(' "1$" #'' #8' ")&' #1+&' #,' 5-$!&' %&'" #'&(' '' +1!)' !&'!&6' +)$--' @&' :&2"' $"' ")&' 88 !&' #8' ")&' -&,:' #8' ")&' 5&$!&' 8#,' ")&' #1'"?6' #1'"?' #8' $' "?6' #,' #1'"?' #8' $' #*'6' $+' ")&' $+&' %$?' @&6' *) !)' +"' #,' &. +"&,' +)$--' $"' $--' ,&$+#'N $@-&' %&+' @&' 2,#(1!&(' "#' $'(' +)$--' @&' #2&'' "#' ")&' '+2&!" #'' $'(' 5&,1+$-' #8' &4&,?' $. +",$"&' * ") '' *)#+&' R1, +(!" #''")&' #1+&' #,' 5-$!&' +2&! 8 &(' '' &$!)' !&'!&' ,&+2&!" 4&-?' +)$--' @&' + "1$"&' ' $'(' $'?' #2?' #8' #,' 9",$!"' 8,#%' $'?' +1!)' +"' #,' &. +"&,6' *) !)' +)$--' #,' %$?' @&' $"' $'?' %&' ,&C1 ,&(' @?' $'?' +1!)' $. +",$"&' $+' $8#,&+$ (6' +)$--' @&' . 4&'' "#') %' @?' +1!)' -&,:' #8' ")&' 5&$!&

+D/E #E' Z" ' O32 #' ^ HD#HDE' . /' 3"D' 27D' .' C / 3E' Z 3" #' 3"D' + 7 HD' * E3/ H3' .' * IO7 #' E"277' D#3D/' 3"D /') 2 0 DE!' H' 23' 3"D' >D2G' + 7 HD' '.. HD!' 2#G' C26' ' 'E' 3 ' =DHD FD/' ' .' C IO7 H' '.. HDE!' I#GD/' 2' +D^ #2736' .' 5U

' '(' @&' "' 81,")&,' &'$!"&(6' 8)$"' &4&,?' 5&,+#'' *)#' +)$--' #@"$ '' #,' ,&'&*' 1'(&,' ") +' !"' $' !&'!&' "#' +&--' 2 , "+' '' $'?' #1+7&' #,' 5,&% +&+' + "1$"&' * ") '' ")&' 5#- !&' 3 +", !" #8' ' " ' &",#2#- +' +)$--6' * ") '' &'' 3$?+' '&9"' $8"&,')&' +)$--')$4&' +#' #@"$ '&(' #,' ,&'&*&(' +1!)' !&'!&6' (&- 4&,' #,' !$1+&' "#' @&' (&- 4&,&(' "#' ")&' 3 4 + #'$-' R1+" !&+' #8' ")&' $+"-&' 3 4 + #'' #8' ")&' +$ (' 5#- !&' 3 +", !"6' #,' "#' +#%&' -&,:' $"' ")&' &$(' 88 !&' #8' 5#- !&' #8' ")&' +$ (' 3 +", !"6' $' #"&' '' E, " ' . 1'(&,' ")&' $'(' #8' +1!)' 5&,+#'6' #,' +#%&' 5&,+#'' @?') %' $1")#, L&(' '' ")$"' &)$-86' '' *) !)' +)$--' @&' +2&! 8 &(6' +&"' 8#,")6' $'(' !#'"$ '&(' ")&'), +" $'' $'(' 1,'$%&' $'(' 5-$!&' #8' @#(&' #8' +1!)' 5&,+#'6' $'(' ")&' "1$" #'' $'(' 3&+!, 2" #'' #8' ")&' #1+&' $'(' 5,&% +&+' '' *) !)' 2 , "+' $,&' - !&'+&(' "#' @&' +#-(' @?' +1!)' 5&,+#'6' "#.&")&,' * ")' ")&' $%&+6' 3&+!, 2" #'6' $'(' &+ (&'!&' #8' ")&' &9 +" '.' 1,&" &+' 8#,' +1!)' 5&,+#'' 1'(&,' ") +' !"-' $'(' +1!)' - !&'+&(' 5&,+#'' +)$--' 2$?' #,' !$1+&' "#' @&' 2$ (' "#' ")&' &!& 4&,' #8' ")&' 21@- !' 88 !&+' '' ")&' +$ (' 5#- !&' 3 +", !"' ' " ' &",#2#- +' ")&' 1%' #8' &'') -- '.+' $'(' $--' 1%+' +#' 2$ (' "#' ")&' &!& 4&,' +)$--' .#' '' $ (' #8' ")&' 1'(+' #8' ")&' 5#- !&' 3 +", !"' #8' ' " ' &",#2#- +' ' $'(' 8' $'?' 5&,+#'' *)#' +)$--')$4&' #@"$ '&(' #,' ,&'&*&(' $' !&'!&' 1'(&,' ") +' !"' "#' +&--' &&,' $'(' 2 , "+' * ") '' ")&' +$ (' 5#- !&' 3 +", !"' +)$--' '#"6' * ") '' ")&' %&' $'(' $''&,')&,& '@&&8#,&' (,&!"&(6' (&- 4&,' #,' !$1+&' "#' @&' (&- 4&,&(' +1!)' #"&' '' E, " ' . $+' $8#,&+$ (6' #,' +)$--' '&.-&!"' "#' 2$?' #,' !$1+&' "#' @&' 2$ (' "#' ")&' 1%' #8' &'') -- '.+6' &4&,?' +1!)' 5&,+#'' +)$--' 8#,8&' "' $'(' -#+&' ")&' 1%' #8' * #' 5#1'(+

) ' * E3 77D/!' /DZD/!' 2 7 ..!' H' E"277' " 7G' 2' HD#HD' . /' 3"D' 27D' .' DD/' H

' '(' @&' "' 81,")&,' &'$!"&(')$"' '#' 3 +" --&,6' ,&*&,6' &!" 8 &,' #,' #%2#1'(&,' #8' 2 , "+6' $ - 886' H$#-&,6' 1,':&?6' #'N +"$@-&6')&, 886' 1@B)&, 886')&, 88;+' 88 !&,6' 5&$!&' 88 !&,6' #,' D&&2&,' #8' $'?' 1,'2 :&' H$"&6' '#,' $'?' 5&,+#'' '#' @&' '.' $' #1+&)#-(&,6' +)$--' @&' !2@-&' #8' ,&!& 4 '.' #,')#-('.' $' !&'!&' "#' +&--' &&,6' (&,6' #,' 2 , "+' @?' &"$ -6' "#' @&' (,$':' #,' !#'+1%&(' #'' ")&' 5,&% +&+

=D32 7D/E' > IEDE' E"277' # 3' OD' CD#' . /3"D 27D .' C / 3E' OD^ 3ZDD#' ' 23') 4"3' 2#G' ' #' 3"D' B /#

< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' '#' 5&,+#'' +&-- '.' #,' - !&'+&(' "#' +&--' &&,' #,' (&,6' 2 , "+' #,' E '&6' @?' &"$ -6' "#' @&' (,$':' #,' !#'N +1%&(' #'' ")&' 5,&% +&+6' +)$--')$4&' #,' :&&2') +' #1+&' #,' #")&,' 5-$!&' #8' $-&' #2&'' 8#,' ")&' $-&' #8' 2 , "+6' E '&6' #,' '#,' +)$--' +&--' #,' ,&"$ -' 2 , "+6' E '&6' #,' &&,6' '#,' +)$--' +188&,' $'?' 2 , "+6' E, '&6' #,' &&,' "#' @&' (,$':' #,' !#'+1%&(' '' #,' $"' +1!)' #1+&' #,' #")&,' 5-$!&6' 5-$!&6' $"

$ ' a B ' ' (2C TQ QT

$" $'? %&' @&"*&&'" ")&' #1,+'#8' -&4&'"#8'")&' -#!:' '" ")&' .)" #4!'# /'OD' à
$'(' &4&'"#8'")&' -#!:' '" ")&' #,' '.6' '#,'$"'$'?' %&' @&8#,&' *#' . /D' Z ' #
#8'")&' -#!:' '" ")&' 8"&,'##'"#'" $'?' ' '1 ' * ' 3"D .3D/# #'
' ' #,' $'?' 3$?' $22# '"&(' 8#,' $' 51@- !' $+" #,')$':+. 4 '.' $'(' #' I#G26E!'
8' $'?' +1!)' 5&,+#'" +)$--' :&&2') +' #1+&' #,' #")&,'5-$!&' #8' $-&' #2&'" ("/ E3 #2E '
8#,' +&-- '.' #,' +)$--' +&--' 2 , "+6' E '&6' #,' &&,' $" $'?' %&' @&"*&&'" G26!' /' G'
")&' #1,'#8' -&4&'"#8'")&' -#!:' $" .)" $'('")&' #1,'#8' &4&'" #8' A/ G26
")&' -#!:' '" ")&' #,' '.6' #,' $" $'?' %&' @&8#,&' *#' #8'")&' -#!:'
'" ")&' 8"&,'##'" #'" $'?' ' '1 ' * ' ' ' #,'
$'?' 3$?' $22# '"&(' 8#,' $' 51@- !' $+" #,')$':+. 4 '.6' +1!)' 5&,+#'"
+)$--' 8#,8&'" ")&' 1,$' #8' *#' 5#1'(+' 8#,' $'?' +1!)' 88&'!&' $'('
&4&,?' +&2$,$"&' $-&' +)$--' @&' (&&%&(' $' +&2$,$"&' 88&'!&6' $'(' $--'
$-&+' #'" $'?'#'&' 3$?' +)$--' @&' (&&%&(' $'(' !#'+ (&,&(' $'(' %$?' @&'
2,#+&!1"&(' $+' +&2$,$"&' 88&'!&+] 5,#4 (&('$-*$?+6'")$" '#") '.')&,& '" &HDC3 #' 2E'
!#'"$ '&(' +)$--' &9"&'(' "#' 2,#) @" ")&' $-&' #8' 2 , "+6' E '&6' #,' &&,' 3 ' /2FD77D/E
"#' $' ,$4&--&,

< ' '(' @&' " 81,")&,' &'$!"&(')$" " +)$--' $'(' %$?' @&' -$*81-' , I E3 HDE' 2#G'
8#,' $'?' R1+" !&' #8' ")&' 5&$!&6' #,' 8#,' $'?') &8' #'+"$@-&6' #,' 8#,' $'?' (#E32O7DE'
)1,!)*$,(&'" #,' 4&,+&&,')&,& 'B$8"&,' %&'" #'&(6' #,' 8#,' $'?' #'B' O 26' D#3D/'
+"$@-&' $1")#, L&(' 8#,' ")&' 51,2#+&' @?' $'?' +1!)' R1+" !&6' * ") '" ")&' #3 ' 2#6'
% "+' #8') +' R1, +(!" #'6' "#' &'"&,' '"#' $'?' #1+&' #,' 5-$!&' :&2" @?' > I ED' #'
$'?' 5&,+#'" +&-- '.' #,')$4 '.' $' !&'!&' "#' +&--' 2 , "+6' E '&6' #,' &&,' Z" H"' C / 3E'
@?' &"$ -6' $" $'?' %&' @&"*&&'" ")&' #1,+' #8' -&4&'" #8' ")&' -#!:' /' DD/' E'
#'" ' .)" $'(' *#' #8'")&' -#!:' '" ")&' 8"&,'##'"#8' ' E 7G!' 2#G'
#,' @&"*&&'" ")&' #1,+' #8' -&4&'" #8' ")&' -#!:' #'" $'?'#")&,' .)" C I 3' I 3' +D/^
$'(' &4&'" #8' ")&' -#!:' '" ")&' #,' '.6' $'(' "#' ,&%#4&' 8,#%' $'(' E #E' 3 CC7 #4'
21" #1" #8' +1!)' #1+&' #,' 5-$!&' $'?' 5&,+#'" *)#' +)$--' @&' +#' 8#1'(' /'42 O #4' 23'
* ") '" +1!)' 2,#) @ "&(' #1,+' '" +1!)' #1+&' #,' 5-$!&' X'#" @& '.' $' C/ " O 3DG'
#(.&,' #,' '%$"&' #8' +1!)' #1+&' #,' 5-$!&[6' $'(' *)#' +)$--' $22&$,' "#' > I/E
@&' #,' "#')$4&' ,&!&'"-?' @&&'" (, ': '.6' " 22- '.6' #,' .$% '.' ")&,& '" '
$'(' ")$" 8' $'?' +1!)' 5&,+#'" +)$--' '#"6' *)&'" ")&,&"#' ,&C1 ,&(' @?' +1!)' +D/E #E' # 3'
R1+" !&' #8' ")&' 5&$!&6') &8' #,' #")&,' #'+"$@-&6')1,!)*$,(&'6' #,' \ I 33 #4!' /'
4&,+&&,' $+' $8#,&+$ (6' ,&%#4&' 8,#%' $'(' C1 " +1!)' #1+&6' #,' +)$--' /DE E3 #4'
8#,! @-?' ,&+ +" +1!)' R1+" !&6' #'+"$@-&6')1,!)*$,(&'6' #,' 4&,+&&,6' " , I E3 HDE!' H!'
+)$--' $'(' %$?' @&' -$*81-' 8#,' $'?' #'+"$@-&6')1,!)*$,(&'6' #,' 4&,N O 26' OD' 2C^
+&&,' "#' $22,&)&'(' $'(' "$:&' '"#' 1+"#(?' $'?'+1!)' 5&,+#'" +#' #88&'(' '.6' C/D"D#GDG
$'(' "#' !$,,?' $'(' !#'4&?6' #,' !$1+&' "#' @&' !$,, &(' $'(' !#'4&?&(6' &4&,?'
$'(' $'?' +1!)' 5&,+#'" +#' $22,&)&'(&(' @&8#,&' $'?' R1+" !&' #8'")&' 5&$!&'
* ") '" *)#+&' R1, +(!" #'" +1!)' #1+&' #,' 5-$!&' +)$--' @&' + "1$"&6' "#' @&'
(&$-" * ")' $!!#,('.' "#' $* ' $'(' &4&,?' +1!)' 5&,+#'" *)#' +)$--' +#'
'&.-&!" #,' ,&81+&' "#' ,&%#4&' 8,#%' #,' C1 " +1!)' #1+&6' #,' +)$--' +#'
8#,! @-?' ,&+ +" +1!)' R1+" !&6' #'+"$@-&6')1,!)*$,(&'6' #,' 4&,+&&,6'
@& '.' (1-?' !#'4 !"&(' #8' +1!)' 88&'!&6' +)$--'")&,&12#'" 8#,' &4&,?' +1!)'
88&'!&' 8#,8&'" $'?' 1%' '#" &9!&&('.' *&'"?') -- '.+' '#,' -&++'")$'"
4&') -- '.+' $'(' 8' $'?' 88&'(&,' +#' !#'4 !"&('+)$--' '#" 8#,")*")'
2$?' ")&' 1%' +#' 8#,8& "&(6' +1!)' 88&'(&,' +)$--' @&' !#%% ""&(' "#' ")&'
#1+&' #8' #,,&!" #'" 8#,' $'?' %&' '#" &9!&&('.' '&' E&&:

< ' '(' @&' " &'$!"&(')$" 8' $'?' 88&'(&,' !#'4 !"&(' '" .'2' 7G D/'
%$''&,' $8#,&+$ (' +)$--' @&' $' #-(&,'#'" 1--' 5$?6' $'(' $""'$!)&('"#' $'?' \88&'(+6'
&. %&'" '" +' $>&+"?;+' &,4 !&' +"$" #'&(' #,' @& '.' * ") '" ")&'
R1, +(!" #'" #8' +1!)' R1+" !&6' $' #%%1' !$" #'" #8' +1!)' #'4 !" #'" 3"D' E2 O D' 3
+)$--

$ $ B ʻ N (2C TQ

3"D (0^ 02#G #4 ' .. HD/

+)$-- @& 8#,") * ") %$(& @? +1!) R1+" !& "# ")& # '"'$' (' .' 88 !&, #8 +1!) &. %&'"6 $' (")& 88&' (&, +# !#' , !"&J" +)$-- @& (&"$ '&(1'" - (&- 4&,&(#4&, "# ")& #%%$' (' .' 88 !&,6 #,)>+ ,(&,6 "# @& $%&'$@-& "# - "$,? 3 +! 2- '&

+D#273 # +D/E #E ED77 ' #4 DD/! H! ?>2#+ ' ."}& #3/6 .' , IE 3 HDE! D= UFY

< ' (@& " 81,")&, &'$!"&( )$" 8 $'? 5&,+#' +&-- ' . #, - !&'+&("# +&-- 2 , "+6 E '&A #, &&, @? &"$ -6 / $'? 5&,+#' $ (' . #, $++ +" ' . +1!) &"$ -&,6 +)$-- 2,&4&'" #, &' (&$4#1, "# 2,&4&'"6 @?),&$"+ #, < #-&' !& #, #")&, * +&6 $'? +1!) R1+" !&6 #,) &8 #, #")&, #'+"$@-&6)1,!) *$,(&'6 #, 4&,+&&,6 ' ")$" &)$,'$1")#, L&(1'(&, ") + !"6 8,#%6 &'"&, ' . $'? #1+& #, 5-$!&6 #, 8#, +&$,!) ' . 8#, $'? +1!) 5&,+#' #, 5&,+#'+ $+ $8#,&+$ (6 #, +)$) $++$1-" # , #")&,N * +& ,&+ +" $'? +1!) R1+" !&6 /) &8 #, #")&, #'+"$@-&6)1,!)N *$,(&'6 #, 4&,+&&, $+ $8#,&+$ (6 &4&,? +1!) 5&,+#' +# #88&' (' . +)$-- 8#,8&" $' (-#+& $ 1%6 '#" &9!&&(' . ")& 1%6 #8 &' 5#1' (+

+D#2736 # +D/E #E /D. IE #4 3 ' 2G0 3 , IE^ 3 HDE! H '5U

< ' (@& " 81,")&, &'$!"&(6)$" 8 $'? 5&,+#' +&-- ' . #, - !&'+&("# +&-- 2 , "+6 =E (&6 #, &&, +)$-- 8#, ")& 2$!& #8 &' '1"&+ $8"&, 3&%$' (%$(& #8 '",$' !& (&-$? #, '& .-&!" "# $(% " $'? R1+" !&6 #,) &8 #, #")&, #'+"$@-&6 @1,!) *$,(8&'6 #, 4&,+&&, $+ $8#,&+$ ('"# $'? #1+& #, 5-$!& #8 +1!) 5&,+#'6 8#, ")& 5%72#+& #8 %$: ' . +1!) &$,!) $+ $8#,&+$ (6 +1!) 5&,+#' #88&' (' . +)$-- 8#,8&" $' (-#+& $ 1,$ '#" &9!&&(' . ")& 1%6 #8 * # 5#1' (+

+D#2736 .' +D/E #E 2/D . I#G 3 C ' 7 % ' .$"2,#B 7 O 3DG> I/E

' (@& " 81,")&, &'$!"&(6)$" &4&,? 5&,+#' +&-- ' . #, - !&'+&("# +&-- 2 , "+6 E '&6 #, &&, @? &"$ -6 ' *)#+& #1+& #, 5-$!& $'? 5&,+#' +)$-- @& 8#1' ("# @& #, "#)$4& @&&' ,&!&'"-? (, ' : ' .6 " 22- ' .6 #, .$% ' . $" $'? #1, #, %& $" *) !) ")& $-& #8 2 , "+ #, &&, + 2,#) @ "&(@? ") + !"6 +)$-- " 2#' :>'4 !" #" ")&,&#8 8#,8&" $' (2$? ")& 1%6 #8 * # 5#1' (+

+2/ E" #D/E # DE3/6 0 26 2CC #3 ' FD/^ EDD/E . + I07 H > IEDE! Z" 'E"277 "2FD3"D E2 0 D + ZD/' 2E +D2HD ' .. HD/E!

' (@& " 81,")&, &'$!"&(6)$" " +)$-- @& -$*81- 8#, ")& 5$, +) #'&,+ #8 ")& +&4&,$- 5$, +)&+ ' $" <&+",? $++&%@-&(6 #'!& &4&,? &$,6 #, #8"&'&, 8 '&!&++$,?6 "# $22# '" +1!) 1%@&, #8 5&,+#'+6 '#" &9!&&(' . 4&6 $+ "# ")&%6 +)$-- +&&%6 %&&"6 "# @& 4&,+&&,+ #8 5&,+#'+ $'(#1+&+ ' *) !) 2 , "+ #, &&, +)$-- @& +#-(@? &"$ - * ") ' &4&,? +1!) 5$, +) ,&+2&!" 4&-? $'(&4&,? 4&,+&&, +# $22# '"&(+)$--)$4& $+ 81-- $'($%2-& 5#*&, 1")#N , "? 8#, !$, ? ' . ")& 5,#4 + #'+ #8 ") + !" '"# &9B&!1" #" * ") ' +1!) 5$, +) $+ $'? #'+"$@-& #, #")&, 5&$!& 88 !&,)$") #, %$?)$4& @? 4 ,"1& #8 ") + !" $'(&4&,? +1!) 4&,+&&, +)$-- 8#, ")& 51,N 2#+&+ #8 ") + !" @& $'(@& (&&%&($'("$: & '# @& $ #'+"$@-& #, 5&$!& 88 !&,

> IEDE 3 ' OD H7 EDG O6 ' /GD/ .' , IE3 HDE # H2ED .'= 3

' (@& " 81,")&, &'$!"&( )$" " +)$-- @& -$*81- 8#, $'? '& R1+" !& $!" ' . 8#, $'? #1'"?6 "?6 #, 5-$!& *)&,& $'? #" #, 1%1-" +)$--)$22&'6 #, 8#, $'? * # #, %#,& R1+" !&+ *)&,& $'? #" #, 1%1-" +)$-- @& $22,&)&' (&($' (&92&!"&("# "$: & 2-$!&6 "# #, (&, #, (,&!" ")$" &4&,? 5&,+#' +&-- ' . 2 , "+ #, &&, @? &"$ -6 $' (:&&2 ' . $'? #1+& #, 5-$!& 8#, ")$" 51,2#+&6 + "1$"& * ") ' ")& , ,&+2&!" 4& R1, +(!" #'+6 $' (' #, '&$, ")& 5-$!& *)&,& +1!) #" #, 1%1-" +)$--)$22&' #, @& &92&!"&("# "$: & 2-$!&6 +)$-- !-#+&) + #1+& #, 5-$!& $" $'? %& $' (8#, +1!) & ' .") #8 %& $+ +1!)

R1+" !&

L $ B ' ' (2C TQ' QT

R1+" !&' #,' R1+" !&+' +)$--' #,(&,' #,' (,&!"' $'(' &4&,?' 5&,+#'' "#' *)#%' +1!)' ,(&,' +)$--' @&' . 4&'6' $'(' *)#' +)$--' :&&2' #2&'' +1!)' #1+&' #,' #")&,' 5-$!&' '' 4 #-$" #'' #8' +1!)' ,(&,6' +)$--' 8#,8& '' $'(' -#+&' ")&' 1%' #8' *#' 5#1'(+

' '(' @&' '' 81,")&,' &'$!"&(')$"' 8#,' ")&' &!#4&,?' #8' $'?' 5&'$-"?' %2#+&(' @?' ") +' !'' X$'(' 8#,' ")&' &!#4&,?' #8' *) !)' '#' #")&,' 5,#4 + #'' +')&,&@?' %$(&[$'' '8#,%$" #'' %$?' @&' &9) @ "&(' @?' $'?' 5&,B' +#'' *)#%+#&4&,' @&8#,&' $'?' '&' #,' %#,&' #8' +' $>&+"?;+' R1+" !&+' #8' ")&' 5&$!&' 8#,' ")&' #1'"?6' "?6' #*'6' #,' 5-$!&' *)&,& '' ")&' 88&'!&' +)$--')$4&' @&&'' !#%% ""&(' #,' ")&' 5&,+#'' #,' 5&,+#'+' !#%% "" '.' ")&' +$%&' +)$--' @&' 8#1'('> $'(' +1!)' '8#,%$" #'' +)$--' $'(' %$?' @&')&$,(6' $(>1(.&(6' $'(' (&"&,% '&(' * ") '' ")&' 3 +", !'' #8' ' '' ' &",#2#- +' @?' $'?' *#' 3 4 + #'$-' R1+" !&+' '' +#%&' #'&' #8' ")&' 21@- !' 88 !&+' ")&,& '6' $'(' '' &4&,?' #")&,' 5$,'' #8' ' @?' $'?' *#' #,' %#,&' #8' +' $>&+"?;+' R1+" !&+' #8' ")&' 5&$!&' 8#,' +1!)' #1'"?6' "?6' #*'6' #,' 5-$!&6' '' 5&""?' &++ #'+' $++&%@-&(' $'(' $'?' *#' #,' %#,&' #8' +1!)' 3 4 + #'$-' R1+" !&+' #,' R1+" !&+' #8' ")&' 5&$!&' +)$--' $'(' ")&?' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(6' 12#'' +1!)' '8#,%$" #'')$4 '.' @&&'' +#' &9) N @ "&(' $+' $8#,&+$ (6' $'(' 12#'' ")&' 22&$,$'!&' #8' ")&' 5&,+#'' $'(' 5&,N +#'+' $.$ '+' *)#%' +1!)' '8#,%$" #'' +)$--')$4&' @&&'' &9) @ "&(6' #,6' '' (&8$1-' #8' +1!)' 22&$,$'!&6' 12#'' 5,##8' #8' ")&' &,4 !&' #8' +1!)' 1%N %#'+' #'' +1!)' 5&,+#'' #,' 5&,+#'+' $+')&,& 'B$8"&,' %&'" #'&(6' "#' 2,#!&&(' "#' ")&' 9$% '$" #'' #8' ")&' $!'' #,' $!"+' '' +1!)' '8#,%$" #'' $--&.&(6' $'(' "#' . 4&' R1(.%&'' 8#,' $'?' +1!)' 5&'$-"?' #,' 5&'$-" &+' *) !)6' 12#,' ")&' (1&' 9$% '$" #'' #8' '&' #,' %#,&' !,&(@-&' E "'&++' #,' E "'&++&+' 12#'' $")' X$'(' *) !)' $")' ")&' +$ (' R1+" !&+' $,&')&,&@?' $1")#, L&(' $'(' &%2#*&,&(' "#' $(% ' +"&,[6' #,' 12#'' ")&' 4#-1'"$,?' #'8&++ #'' ")&' 5$,"?' $!!1+&(6' +)$--' @&' 8#1'(' "#')$4&' @&&'' '!1,,&(6' "#.&")&,' * ")' ")&' -&.$-' #+"+' #8' ")&' #'4 !" #'' $'(' +1!)' R1+" !&+' ,&+2&!" 4&-?' +)$--' $'(' ")&?' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' ")&,&12#'' "#' $*$,(' $'(' .,$''' $' E$,,$''' #,' E$,,$'"+' 1'(&,' ")&,' $'(+' 8#,' ")&' (1&' 9&!1" #'' #8' $'(' !$,,? '.' '"#' &88&!'' $+')&,& 'B$8"&,' %&'" #'&(' +1!)' R1(.%&'"

+D#273 DE' 0 26OD' /DH ' OD. /D' , I E ' 3 HDE' #8")&' +D2HD!'

' '(' @&' '' 81,")&,' &'$!"&(6')$"' &4&,?' +1!)' '8#,%$" #'' $+' $8#,&+$ (' +)$--' @&' &9) @ "&(' * ") '' '&' $-&'($,' #'")' '&9'' $8"&,' ")&' 88&'!&' $--&.&(' '' +1!)' '8#,%$" #'' +)$--')$4&' @&&'' !#%% ""&(' $'($' #" !&' '' E, " '.' #8' +1!)' '8#,%$" #'')$4 '.' @&&'' +#' &9) N @ "&(' +)$--' * ") '' '&' E&&:' $8"&,' ")&' 9) @ " #'' ")&,&#8' @&' . 4&'' "#' ")&' 5&,+#'' #,' 5&,+#'+' $.$ '+' *)#%6' ")&' +$%&' +)$--')$4&' @&&'' +#' &9) @ "&(' $'(' ")&' R1+" !&' #,' R1+" !&+' #8' ")&' 5&$!&' @&8#,&' *)#%' $'?' +1!)' '8#,%$" #'' +)$--')$4&' @&&'' &9) @ "&(' $+' $8#,&+$ (' $,&6')&,&@?' ,&+2&!" 4&-?' $1")#, L&(' $'(' ,&C1 ,&(' "#' +1%%#'' &4&,?' 5&,N +#'' $.$ '+' *)#%' $'?' +1!)' '8#,%$" #'' +)$--')$4&' @&&'' &9) N @ "&(' "#' $22&$,' $'(' 2-&$(' "#' $'(' "#' $""&'(' ")&' &$, '.' #8' +1!)' '8#,%$" #'' $'' $' %&' $'(' 5-$!&' "#' @&' +"$"&(' '' +1!)' 1%%#'+6' *) !)' 1%%#'+' +)$--' @&' +&,4&(' 12#'' &4&,?' +1!)' 5&,+#'' #,' 5&,N +#'+' *#' 3$?+' $'' -&$+'' @&8#,&' ")&' %&' $22#' '"&(' '' +1!)' 1%%#'+

#. /023 #' 3 ' OD' 72 G' Z 3" #' ' #D' B #3"' 2.3D/' ' ..D#HD!' 2#G') 3 HD' 3"D/D^ .'4 FD#' Z 3" #' 2' DD]' 2.3D/ ' +2/3 DE' 3 ' ODEI O #DG' 3 ' 2CCD2/

< ' '(' @&' '' 81,")&,' &'$!"&(')$"' '' +)$--' @&' -$*81-' 8#,' +1!)' R1+" !&' #,' R1+" !&+' #8' ")&' 5&$!&' ,&+2&!" 4&-?' "#' % " .$"&' $'?' ")&' 5&'$-"?' $''&9&(' @?' ") +' !'' "#' ")&' 88&'!&' 8#,' *) !)' $'?' '8#,%$' %" .$"&' "#'

, I E3 HDE' #8' +D2HD'

" # ' +)$--)$4& @&& ' &9) @ "&(@&8#,& + -!) R1+" !& #, R1+" !&+ ,&B +2&!" 4&-?6 +# $+ +1!) " .$" # ' +)$-- '#" 1 $ ' > $+& ,&(1!& +1!) 5&'$-"? "# -&++ ")$ ' '& #1,") "8$&,&"?8 $'(")$" ")& $1+&#8 +1!) " .$" # ' +)$-- @& +&" 8#,") 12# ' +1!) #'4 !" # '

CCD27

< '(@& " 81,")&, &'$!"&(6)$" ' !$+& $'? 5&,+# ' #, 5&,+# '+ $.$ '+" *)#%6 $'? '8#,%$" # ' +)$--)$4& @&& ' &9) @ "&(1'(&, ") + !" +)$-- 8&&- $. . , &4&(@? ")& R1(.%& '" . 4& ' ")&,&# '6 " +)$-- @& -$*81- 8#, +1!) 5&,+# ' #, 2&,+# '+6 12# ' . 4 ' . +1!) #" !& $+)&,& 'B$8"&, %&'" # '&(6 "# $22&$- ")&,&8,#%6 "# ")& R1+" !&+ $++&%N @-&($" ")& '&9" H&'&,$- #, T1$,"&, &++ # '+ #8 ")& 5&$!&6 #, 8 ")&,& @& '#" '& E&&: @&"*&& ' ")& %& #8 ")& (>1(!$" # ' $'(")& '&9" H&'&,$- T1$,"&, &++ # '+6 ")& ' "# ")& H&'&,$- T1$,"&, &++ # '+ #8 ")& 5&$!& '&9" $8"&, ")& 92 ,$" # ' #8 +1!) E&&:6 "# @&)#-(& ' ' $'(8#, ")& #1 '"?6 "?6 #* '6 #, 5-$!& ' *) !) +1!) R1(.%& '" +# $22&$-&($.$ '+" +)$--)$4& @&& ' . 4& ' $'(" +)$-- @& -$*81- 8#, ")& R1+" !&+ #8 ")& 5&$!& $" +1!) H&'&,$- #, T1$,"&, &++ # '+ "#)&$,6 $(>1(.&6 $'(8 '$--? (&"&,% '& +1!) 22&$- > $'(8 12# ' $'? +1!) 22&$- $'? 3&8&!" ' #,%6 +)$-- @& 8#1'(' ")& '8#,%$" # '6 #, ' $'? 5$," #8 ")& 5,#!&&('.+ ")&,&# ' #, ,&-$" '. ")&,&"#6 #, ' ")& &!#,(")&,&#8 &4&,? +1!) 3&8&!" #8 #-A,$ +)$-- $'(%$? ")&,&N 12# ' @& ,&!" 8 &($'($%&'(&(@? ,(&, #8 +V!) R1+" !&+ #, ")& %7#, 5$," #8 ")&%6 $++&%@-&($" +1!) H&'&,$- #, T1$,"&, &++ # '+6 $'? ") '. ' ") + #, $'? #")&, !" #, !"+ #8 5$,- $%& '" "# ")& !#'",$,? '#"* ")+"$'('.

*D.DH3E . A /O HI/DG IC # CCD27

) CCD27 277 ZDG I#^ 7DEE) 3 HD 3"D/D . 4 FD#

< 5,#4 (&($-*$?+6 $'(@& " &'$!"&(6)$" '# +1!) 22&$- $+ $8#,&+$ (+)$-- @& $--#*&(1'-&++ ")& 5$,"? #, 5$," &+ 22&--$ '" +)$--6 * ") ' #,"?B& .)" #1,+ $8"&, ")& . 4 ' . #8 ")& R1(.%& '" $22&$-&($.$ '+"6 . 4& #" !& ' E, " ' . #8 +1!) 22&$- "# ")& -&,: #8 ")& R1+" !&+ #, &++ # '+ 8,#%6 *)#+& R1(.%& '" +1!) 22&$- +)$-- @& %$(&6 $'(+)$-- -#(.& +1!) #" !& $" ")& 88 !& #, * ") ")& -&,: #8 ")& 5&$!& $" +1!) H&'&,$- #, T1$,"&, &++ # '+ $+ $8#,&+$ (,&N +2&!" 4&-? @? $'(@&8#,& *)#%6 +1!) 22&$- + "# @& 8 '$--? $(>1(.&($'((&"&,% '&( ] 5,#4 (&($-+#6 ")$" '#") ' .)&,& ' #, ' $'? #")&, ! #8 5$,- $%& '" !#'"$ '&(+)$-- @& (&&%&(#, !#'+",1&("# (&2, 4& $'? 5&,+# ' #, 5&,+# '+ *)# +)$-- 8&&- $. . , &4&(@? $'? #'4 !" # '6 ,(&,6 #, 5,#!&&(' . %$(& #,)$(1'(&, ") + !"6 #8 ")& E, " #- &," #,$, ' ,&+2&!" ")&,&#8

&DHI3 # E"277 # 3 OD E326DG I#^ 7DEE 3"D +2/36 H #^ F H3DG E"277 4 FD DHI/36 O6 =DH 4^ # d2#HD 3 C/ EDHI3D CCD27

< '(@& " &'$!"&( )$" '# 22&$- +)$-- +"$? #, 2,&4& '" ")& 9&!1" # ' #8 $'? E$,,$ '" #, 5,#!&++ # ' $'? #'4 !" # ' V'-&++ ")& 5$,"? !#'4 !"&(+)$-- @&8#,& ")& !#'4 !" ' . R1+" !& #, R1+" !&+ &'"&, '"# $ &!#. ' L$'!&6 * ") *# +188 ! &'" 1,&" &+7 ' $ 1% &C1$- "# 3#1@-& ")& %#1 '" #8 ")& 5&'$-"? #, 5&'$-" &+ ' *) !) ")& +$ (5$,"? +)$--)$4& @&& ' !#'4 !"&(6 $'(#8 ")& #+"+ $*$,(&(6 8 $'?6 *) !) &!#. ' L$'!& +)$-- @& !#'(" # '&(6 ")$" ")& 5$,"? +# $22&$- ' . +)$-- 2&,+# '$--? $22&$, $" ")& 2,#2&, H&'&,$- T1$,"&, &++ # '+6 $'($@ (& ")& R1(.%& '" #8 ")& #1," ")&,&12# '6 $'(2$? +1!) #+"+6 8 $'?6 $+ +)$-- @7& @? ")& #1," $*$,(&(*) !) &!#.N ' L$'!& +1!) R1+" !& #, R1: !&+ + $'($,&)&,&@? $1")#, L&("# ,&C1 ,& $'("$:& #8 ")& 5$,"? !#'4 !"&(&'"&, '. '"# +1!) &!#.B7 ' L$'!& > $'(")& R1+" !& #, R1+" !&+ *)# +- $--"$:& +1!) &!#. ' L$'!&+

L ' $ B ' ' (2C TQ Q

+ $ ' ($,& $-+#)&,&@? ,&C1 ,&("# @ ' (")& 5&,+#' *)# +)$-- %$:&
")&)$,.& #' *) !) +1!) R1(.%&' +)$--)$4& @&&' . 4&' ' $
&!#. ' L$'!& !#' ("#'&(")$")& +)$-- $22&$, $" +1!) H&'&,$- #,
T1$,"&, &++ #'+ $8#,&+$ (6 ")&' $' (")&,& "# . 4& 4 (&'!& $.$ '+"
")& 5&,+#' +# !)$,.&(6 $' ("# ' - :& $''&,@ ' ($'? #")&, 5&,+#'
E)# +)$--)$4& $'? D'#*-&(.& #8 ")& ,!1%+"$'!&+ #8 +1!) 88&'!&

< ' (@& "81,")&, &'$!"&( )$" 12#' &4&,? +1!) 22&$- , I E3 HDE 23
$+ $8#,&+$ (" +)$-- @& -$*81- 8#, ")& R1+" !&+ #8 ")& 5&$!& $" ")& Y I 2/3D/ DE^
H&'&,$- #, T1$,"&, &++ #'+ "# ,&)&$, 12#' $") ")& &, "+ #8 ")& E #E! #
$+& *)&,&#' ")& #, . '$- R1(.%&' $22&$-&($.$ '+" +)$--)$4& @&&' CCD27! 3
. 4&'6 $' ("# ,&4&,+& #, !#'8 ,% ' ")& *)#-& #, ' 2$, ")& R1(.%&' D&2 O #D #76
$22&$-&($.$ '+"6 #, "# . 4& +1!) '&* #, (88&,&' R1(.%&' $+ ")&? 3"D F GD#HD
' ")&, 3 +!,&" #' +)$-- ' ")$" &)$-8 ") ' : 8 " $' (+1!) R1+" !&+ OD. /D 4 FD#!
#8 ")& 5&$!& $" H&'&,$- T1$,"&, &++ #'+ +)$-- ' +1!) '&* #, 2#G # H2ED
(88&,&' R1(.%&')$4& ")& +$%& 5#*&, #8 % " .$" ' . $+ +)&,& 'N .'2#6 #DZ
@&8#,& @? ") + !" . 4&' "# R1+" !&+ ' R1(.%&'+ . 4&' @? ")&%] , I G4 O D#3 3
5,#4 (&($-*$?+6 ")$" " +)$-- @& -$*81- 8#, +1!) R1+" !&+ #8 ")& 5&$!& "2FD 3"D 7]D
$" +1!) H&'&,$- T1$,"&, &++ #'+ $+ $8#,&+$ (6 $" ")& , 3 +!,&" #'6 + ZD/ .
"# +"$"& +2&! $--? ")& $!"+ #8 $'? $+& #' *) !) +1!) 22&$- +)$-- O 3 423 #4 2E
@& %$(&6 8#, ")& 2 ' #' #8 + $>&+"?;+ #1, #8 D ' .;+ &'!) ' 3"D / 4 #27
, I E3 GDE
,

' (6 @& " 81,")&, &'$!"&(6)$" *)&' $'? +1!) 22&$- (I /3 3 !
+)$-- @& (+% ++&(6 #, ")& (>1(!$" #' $22&$-&($.$ '+" +)$-- @&
$88 ,%&(6 #, +1!) 22&$- +)$-- @& $@$' (#'&(6 " +)$-- @& -$*81- 8#, ")& * E O EE27 /
#1," "# *) !) +1!) 22&$- +)$--)$4& @&&' %$(& #, '"&' (&("# @& O2#G #
%$(& "# $(>1(.& $' (#,(&, ")$" ")& 5$,"? $22&$- ' . +)$-- 2$? "# ")& O D 3 .
5$,"? ' *)#+& $4#1, +1!) (>1(!$" #')$+ @&&' %$(& +1!) ,&$+#'B 22M$-
$@-& #+"+ $+ +)$-- ' ")& 2 ' #' #8 +1!) #1," @& %&&"

' (@& " 81,")&, &'$!"&( )$" $'? 5&,+#' (1-? $' (+D#2736 #
'&!&++$, -? +1%%#'&($+ $ E "'&++ "# . 4& 4 (&'!& @&8#,& $'? R1+N @ 3#DEEDE
" !& #, R1+" !&+66 #, $'? #1," #8 H&'&,$- #, T1$,"&, &++ #'+6 "#1!) ' . # 3 233DOG
$'? #8 ")& $""&,+ $8#,&+$ (6 &")&, #' ")& 5$," #8 ")& #%2-$ '$' 9#4
#, #8 ")& 5&,+#' $!!1+&(6 *)# +)$-- '&.-&! #, ,&81+& "# $22&$, $" ")&
%& $' (5-$!& 8#, ")$" 51,2#+& $22# '"&(6 $' (*)# +)$-- '#" %$:&
+1!) ,&$+#'$@-& 9!1+& 8#, +1!) &.-&! #, &81+$- $+ +)$-- @& $(N
% ""&($' ($--#*&(@? +1!) R1+" !& #, R1+" !&+6 #, &++ #'+6 #, *)#
$22&$, ' . +)$-- ,&81+& "# @& &9$% '&(#' $") #, 88 ,%$" #'6 $' (
. 4& 4 (&'!&6 +)$-- 8#,8& " ")& 1%6 #8 *# 5#1' (+6 *) !) 1% +)$--
@& -&4 &(6 ,&!#4&,&(6 $' (&'8#,!&(' - :& $''&, $+ $'? 5&'$-"?
%2#+&(@? ") + !"

' ( )& " 81,")&, &'$!"&( )$" *)&,& $'? R1(.%&' +/ HDDG #4E!
$22&$-&($.$ '+" 1'(&, ") + !" +)$-- @& $88 ,%&(6 +1!) R1(.%&' I C # * D3D/
%$? @& &'8#,!&(6 $' (&9&!1"&(@? ")& #, . '$- !#'4 !" ' . R1+" !& #, 722&$5
R1+" !&+ #8 ")& 5&$!& ,&+2&!" 4&-? ' - :& $''&, $+ 8 ")&,&)$(
@&&' '# 22&$-

' (@& " 81,")&, &'$!"&( )$" *)&,& $'? R1(.%&' , I E3 HDE E"277
'#" $22&$-&(8,#%6 #, $'? R1(.%&' $88 ,%&(#' 22&$-6 + @? ") + 4/2#3 @2/
!" ,&C1 ,&("# @& &'8#,!&($' (&9&!1"&(@? ")& R1+" !& #, R1+" !&+ . / ")&
@?] F6 3 4 .

+D#273 DE /
, I G4 O D#3E
3 OD D#. /HDG
OF 3"D O

@? *)#%' ")&' +$%&' +)$--')$4&' @&&'' . 4&'6' ''' +)$--' @&' -$*81-' 8#,' +1!)'
R1+" !&' F' R1+" !&+' #8' ")&' 5&$!&6' $'(')&' #,' ")&?' +' $'(' $,&' ,&C1 ,&('
)&,&@?6' "#' $*$,(' $'(' .,$''' $' E$,,$''' ,' E$,,$''+' 1'(&,') +' #,'")&,'
$'(' #,' $'(+' "#' $'?' #'+"$@-&' #,' 5&$!&' > !&,' $1")#, L '.' +1!)'
#'+"$@-&' #,' 5&$!&' 88 !&,' "#' -&4?' ")&' 5&'$-"?' #,' 5&'$-" &+' #,' C%' #8'
1%+' #8' #'&?' +#' $(>1(.&(' 12#'' ")&' H##(+' $'(')$""&-+' #8' +1!)'
5&,+#'' #,' 5&,+#'+' +#' !#'4 !"&(6' $'(' & ")&,' "#' (&"$ '' $'(' :&&2' +1!)'
H##(+' $'(')$""&-+' '' ")&' #1+&' #,' 5-$!&' *)&,&' ")&' +$%&' +)$--'
)$4&' @&&'' 8#1'(6' #,' "#' ,&%#4&' ")&' +$%&' "#' +#%&' !#'4&' &''' 5-$!&' #8'
$8&"?

, I E3 HDE 23
Y I 2/3D/ DE^
E #E E"27
4/2#3 @2/^
/2#3E . / 3"D
DF6 .
+D#273 DE #
, I G4 O D#3E
3 'OD D#. /HDG
O6 3"D O

' '(' @&' '' 81,")&,'&'$!"&(')$'' *)&,&' $'?' R1(.%&''' $
@?' ") +' !'' ,&C1 ,&(' "#' @&' $*$,(&(7' &'8#,!&(6' $'(' &9&!1"&(' @?' ")&'
R1+" !&+' #8' ")&' 5&$!&' $'' ")&' H&'&,$-' T1$,"&,' &++ #'+6' #'' 22&$-' #,'
#")&,* +&6' '' +)$--' @&' -$*81-' 8#,' +1!)' R1+" !&+' #8' ")&' 5&$!&' $'' ")&'
H&'&,$-' T1$,"&,' &++ #'+6' $'(' ")&?' $;&')&,&@?' $1")#, L&(' $'(' ,&A
C1 ,&(6' "#' $*$,(' $'(' .,$''' $' E$,,$''' #,' E$,,$''+' 1'(&,' ")&,' $'(+6'
#,' 1'(&,' ")&' $'(+' #8' $'?' *#' R1+" !&+' ,&+2&!" 4&-?6' "#' $'?' #'N
+"$@-&' #,' 5&$!&' 88 !&,6' $1"@#, L%.' +1!)' #(7$@-&' #,' 5&$!&' 88 !&,'
"#' -&4?' ")&' 5&'$-"?' #,' 5&'$-" &+' #,' 1%' #,' 1%+' &8' #'&?' +#' $(6'
>1(.&(' 12#'' ")&' H##(+' $'(')$""&-+' #8' +1!)' 5%;+#'' #B' 5&,+#'+' +#'
!#'4 !"&(6' $'(' & ")&,' "#' (&"$ '' $'(' :&&2' +1!)' H##(+' $'(')$""&-+'
'' ")&' #1+&' #,' 5-$!&' *)&,&' ")&' +$%&' +)$--')$4&' @&&'' 8#1'(6' #,' "#'
,&%#4&' ")&' +$%&' "#' +#%&' !#'4&' &''' 5-$!&' #8' $8&"?

DF6 @2/^
/2#3E 2#6
O D # 3
7DEE 3"2# &
/ D&HDDG '
4 D#*26E!
O26 OD 2C^
C #3DG . /
27D 7 * E^
3/DEE

<' '(' @&' '' 81,")&,' &'$!"&(')$'' '' +)$--' @&' -$*81-' '' $'?
+1!)' &4?' E$,,$''' "#' #,(&,' $'(' (,&!'' ")&,& '' ")$'' ")&' H##(+' $'('
)$""&-+' 12#'' *) !)' +1!)' &4?' +)$--' @&' '$$(&' +)$--' @&' +#-('$'(' (+A
2#+&(' #8' +#' +##'' $+' !#'4&' &''-?' %$?' @&' $8"&,' $' !&,"$ '' %&' "#' @&'
-% "&(' '' +1!)' E$,,$''' 8#,' ")&' $-&' ")&,&#8' X+#' $+' ")$'' +1!)' %&'
@&' '#'' -&++' ")$'' 9' 3$?+' '#,' %#,&' ")$'' &'' 3$?+' 8,#%' ")&' H$?' #8'
& L1,&[6' 1'-&++' ")&' 5&'$-"?' #,' 5&'$-" &+' #,' 1%' $'(' 1%+' #8' #'&?'
8#,' *) !)' +1!)' &4?' +)$--' @&' %$(&' +)$--6' * ") '' ")&' %&' -% "&('
8#,' ")&' 5$?%&''' ")&,&#8' $+' $8#,&+$ (6' @&' 2$ (' $'(' $" +8 &(6

+D#2736 2#G
&CD#HDE 3 '
OD GDG I H3DG
./ O 3"D
27D 2#G 3"D
' FD/C7 I E 3 '
OD /D3 I /#DG

<' '(' @&' '' 81,")&,' &'$!"&(6')$'' '' +-$--' @&' -$*81-' 8#,' ")&'
#'+"$@-&' #,' 5&$!&' 88 !&,' %$: '.' +1!)' &4?6' $'(')&' +')&,&@?'
&%2#*&,&(' $'(' ,&C1 ,&(6' "#' (&(1!'' ")&' 5&'$-"?' $'(' 5&'$-" &+' #,' 1%'
$'(' 1%+' #8' #'&?' 8#,' *) !)' +1!)' &4?' +)$--' @&' %$(&6' $'(' $--'
,&$+#'$@-&')$,.&+' $'(' 92&'!&+' $""&'(' '.' +1!)' &4?6' '#'' &9!&&(N
'.' '&') -- '.' '' ")&' 5#1'(' #'' ")&' %#1''' +2&! 8 &(' '' +1!)'
E$,,$''6' #1'' #8' ")&' #'&?' $, + '.' @?' +1!)' $-&' $+' $8#,&+$ (6' $'(' "#'
,&"1,'' ")&' 4&,2-1+6' 8' $'?6' "#' ")&' 5,#2,&"#,' #,' 5,#2,&"#,+' #8' ")&'
H##(+' $'(')$""&-+' 12#'' *) !)' +1!)' &4?' +)$--')$4&' @&&'' %$(&6' #,'
"#' ")&' 5&,+#'' -&.$--?' &''-&(' ")&,&"#' $'(' +1!)' 88 !&,' +)$--6' 8'
,&C1 ,&(6' +)#*' +1!)' E$,,$''' "#' ")&' 5&,+#'' 12#'' *)#+&' H##(+' $'(B'
)$""&-+' +1!)' &4?' +)$--' @&' %$(&6' $'(' +)$--' +18-&&,' +1!)' 5&,+#'' #,'
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' (C6 .
3"D @2//2#3
O26OD 32]#

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E I . . H D#3
* E3/DEE
H2## 3 OD
. I #G 2

<' '(' @&' '' 81,")&,' &'$!"&(6')$'' 8#,' E$''' #8' +188 !&''
H##(+' $'(')$""&-+' *)&,&#'' +1!)' 5&'$-"?' $'(' 5&'$-" &+' #,' 1%' $'('
1%+' #8' #'&?6' * ")' ")&')$,.&+' $'(' 92&'!&+' $8#,&+$ (6' %$?' @!'
-&4 &(6' $'(' #'' $' &"1,'' '' E," '.' %$(&' 12#'' $'?' &4?' E7$,$''
@?

@?' $'?' #'+"$@-&' #,' 5&$!&' 88 !&,' "#' *)#%' +1!)' E$,,$'' %$?')$4&' @2//2#3' 026'
@&&'' (,&!"&(6' "#' ")&' R1+" !&+' @?' *)#%' +1!)' E$,,$'' +)$--')$4&' EEID'. /' 3"D'
@&&'' .,$'"&(6' #,' "#' $'?' *#' #,' %#,&' #8' ")&' R1+" !&+' #8' ")&' 5&$!&' //DE3' .' 3"D'
* ") '' *)#+&' R1, +(!"#'' $'?' +1!)' E$,,$'' +)$--')$4&' @&&'' ++1&(6' +D/E #
")$' +1!)' #'+"$@-&' #,' 5&$!&' 88 !&,' !$''#' 8 '(6' * ") '' ")&' R1, +N
(!"#'' '' *) !)' +1!)' E$,,$'' +)$--')$4&' @&&'' ++1&(6' $'?' H##(+'
$'(')$""&-+' #8' ")&' 5&,+#'' $.$ '+' *)#%' +1!)' E$,,$'' +)$--')$4&'
@&&'' .,$'"&(' *)&,&#'' ")&' +$%&' !$'' @&' -&4 &(6' #,' #'' $' &"1,'' $+'
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1%+' #8' #'&?6')$,.&+6' $'(' 92&'!&+6')$+' @&&'' -&4 &(' #,' 2$ (6'
$'(' ")$' ")&' #'+"$@-&' #,' 5&$!&' 88 !&,' !$''#' 8 '(' $'?' 81,")&,'
H##(+' $'(')$""&-+' #8' ")&' 5&,+#'' #,' 5&,+#'+' $.$ '+' *)#%' +1!)'
E$,,$'' +)$--')$4&' @&&'' .,$'"&(' @&?#'(' ")&' H##(+' $'(')$""&-+'
$-,&$(?' +& L&(' $'(' +#-(' $+' $8#,&+$ (6' * ") '' ")&' R1, +(!"#'' $+' $8#,&N
+$ (6' *)&,&#'' ")&' &+ (1&' #8' +1!)' 5&'$-"?' $'(' 5&'$-"&+' #,' 1,$' $'('
1%+' #8' #'&?6')$,.&+6' $'(' 92&'!&+' !$'' @&' -&4 &(6' '' +)$--' @&'
-$*81-' 8#,' +1!)' R1+" !&+' "#' !#%%' +1!@' 5&,+#'' "#' ")&' #%%#''
H$#-' #,' "#' ")&' #1+&' #8' #,,&!"#'' #8' ")&' #1''?' #,' 5-$!&' 8#,'
*) !)' +1!)' R1+" !&+' +)$--' ")&'' @&' $!" '.' 8#,' $'?' &,%' '#' &9N
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,&%$ ' '.' (1&' #'' ##' ")&,&#8' +)$--' '#' @&' $@#4&' 4&' 5#1'(+6' 8#,'
$'?' &,%' '#' &9!&&('.' *#' $-&'($,' #'")+' 8' ")&' 5&'$-"?' #,'
5&'$-"&+' #,' ")&' 1%' ,&%$ ' '.' (1&' #'' ")&' ##' ")&,&#8' +)$--' @&'
$@#4&' 4&' 5#1'(+] 5,#4 (&(' '&4&,")&-&++6' ")$' *)&'&4&,' +1!)' +/ FE'
88&'(&,' +)$--')$4&' @&&'' !#%% ""&(' "#' ")&' #%%#'' H$#-' #,' '..D#GD/E'
#1+&' #8' #,,&!"#'' '' !#'+&C1&'!&' #8') +' '#')$4 '.' (1-?' 2$ (' +1!)' C26 #4'
5&'$-"?' #,' 5&'$-"&+' #,' 1%' ,&%$ ' '.' (1&' #'' ##' ")&,&#86' 8' +1!)' +D#2736' 3
88&'(&,' +)$--' 2$?' #,' !$1+&' "#' @&' 2$ (' "#' ")&' H$#-&,' #,' D&&2&,' #8' '2 7D/E
")&' H#$-' #,' #1+&' #8' #,,&!"#'6' #,' "#' *)#%+#&4&,' +1!)' R1+" !&' #,'
R1+" !&+' +)$--')$4&' $22# '"&(6' ")&' 5&'$-"?' #,' 5&'$-"&+' #,' 1%' ,&N
%$ ' '.' (1&' #'' ##' ")&,&#86' $' $'?' %&' 2,&4 #1+' "#' ")&' 92 ,$" #''
#8' ")&' %&' 8#,' *) !)' +1!)' 88&'(&,' +)$--' +#')$4&' @&&'' !#%% ""&(6'
+1!)' 88&'(&,' +)$--' @&' 8#,") * ")' (+!)$,.&(6

< ' '(' @&' '' 81,")&,' &'$!"&(')$' '' !$+&' $'?' 5&,+#'' !#'8' '#' GD.2173' .'
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#+"+' $*$,(&(' @?' +1!)' #'4 !"#'6' #,' 12#'' $'?' 22&$-' ")&,&8,#%6' '
+)$--' @&' -$*81-' 8#,' ")&' R1+" !&' #,' R1+" !&+' '' T1$,"&,' &++ #'+' $++&%@-&(' @&)> '
!#'4 !" '.' +1!)' 88&'(&,6' $8"&,' ")&' 92 ,$" #'' #8' '&' $-&'($,' #'")' 242 #E3' 3"D'
'&9' $8"&,' +1!)' #'4 !"#'' #,' ,(&,6' '' !$+&' #8' 22&$-6' "#' +1%%#'' $'?' I/D3 DE'
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$'(' &9&!1"&(' @?' +1!)' 5&,+#'' $'(') +' 1,&"?' #,' 1,&" &+' $' ")&' %&'
#8' #@"$ ' '.') +' !&'!&' #,' %$: '.' +1!)' 22&$-6' "#' $22&$,' @&8#,&' ")&'
+$ (' R1+" !&' #,' R1+" !&+6' $'(' +)#*' $1+&' *)?' ")&' 5&'$-"?' %&'" #'&('
'' +1!)' #'(' #,' &!#.' L$'!&' +)#1-(' '#' @&' 2$ (' @?' +1!)' 1,&"?' #,'
1,&" &+6' #,' +#' %1!)' ")&,&#8' $+' +)$--' @&' +188 ! &'' "#' 2$?' $'?' 5&'$-"?'
#,' #+"+' +#' '!1,,&(6' #,' "#' +$" +8?' +#' %1!)' #8' +1!)' 5&'$-"?' #,' #+"+'
$+' +)$--' ,&%$ '' 1'2$ (' $'(' '' !$+&' $'?' +1!)' 1,&"?' +)$--' '#' +)#*'
$'?' +188 ! &'' $1+&' "#' ")&' !#'",$,?6' '' +)$--' @&' -$*81-' 8#,' +1!)' R1+" !&'
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#,' +#' %1!)' ")&,&#8' $+' $8#,&+$ (6' @?' 3 +",&++' $'(' $-&' #8' ")&' H##(+'
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3 #' E"277' OD'
\ I2E"DG' . /'
@2#3' .'
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< ' '(' @&' "81,")&,' &'$!"&(6')$"' '#' #'4 !"#"' 1'(&,'
")+' !"6' '#,'$'?' (>1(!$"#"' %$(&' 12#"' 22&$-' ")&,&8,#%6' +)$--'
@&' C1$+)&(' 8#,' E$"' #8' #,%' ' $'(' '#' E$,,$'"' #8' #%, "%&'"' +)$--'
@&')&-(' 4#' (' @?' ,&$+#"' #8' $'?' %&,&' 8#,'($-' 3&8&!"' ")&,& '6' 2,#4 (&('
")$"' "' @&' ")&,& "' $--&.&(' ")$"' ")&' 5$,"?')$+' @&&"' !#'4 !"&(6' $'(' ")$"'
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.' +D#273 DE

' '(' @&' "' 81,")&,' &'$!"&(')$"' #'&' # &"?' #8' &4&,?'
'&6' 5&'$-"?6' $'(' #,8& "1,&' @?' ")+' !"' %2#+&(6' $2('> #"' &92,&++-?'
(,&!"&(' "#' @&' #")&,* +&' $22- &(6' +)$--6' $8"&,' (&(1!" ' .' $--' 81,")&,'
'&!&++$,?')$,.&+' #8' &4?' '#"')&,& 'B@&8#,&' 2,#4 (&(' 8#,6' @&' 2$ ('
"#' ")&' V+&' #8' +' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' $ (' ")&' #")&,'
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@&&"' !#%% ""&(6' $"' ")&' 3 +!,&"#"' #8' ")&' R1+" !&+' *)#' +)$--' $*$,('
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#63" #4'
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C I4#2#3' 3 '
3" E' H3!'
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' 5,#4 (&(' $-*$?+6' $'(' @&' "81,")&,' &'$!"&(6')$"' &4&,?' 5,#N
4 + #'6' -$1+&6' $""&,6' $'(') ' .' !#'"$ '&(' "' $""?' "$"1"&' @&,&B'
"#8#,&' 2$++&(' ,&21.'$'"' "#' ")&' 5,#4 + #'+' #8' ")+' !"' #,' $'?' #8'
")&%6' #,' 8#,' #,' "' - &1' #8' *) !)' 5,#4 + #"' +')&,&@?' '-$(&' X 8' $'?'
+1!)' ")&,&' @&[6' @&' $'(' ")&' +$%&' $,&')&,&@?' ,&2&$-&(

3 '] 5, '"&(' @?' ' '$'(' ' A'
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#ʿ H3ʿ 3 ʿ D&3D#Gʿ 2#Gʿ D#72/4Dʿ 3"Dʿ + ZD/Eʿ .ʿ 3"Dʿ
(O O EE #D/Eʿ .ʿ > Eʿ B25DE36aEʿ @ GE!ʿ A /DE3E!ʿ
2#Gʿ =DFD#IDE!ʿ @ /]E!ʿ 2#Gʿ I 7G #4E!ʿ #ʿ /D72^
3 #ʿ 3 ʿ 3"Dʿ B2#24D O D#3ʿ 2#Gʿ * EC E 3 #ʿ .ʿ 3"Dʿ
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#")&,* +&ʻ &%2-#?&(ʻ 'ʻ ")&ʻ &!& 2" $'(ʻ $'$.&%&'" #8ʻ T&ʻ +$ (ʻ
&4&'1&6ʻ $'(ʻ .&'&,$--?ʻ"#ʻ $(% ' +"&,ʻ ")&ʻ+$%&ʻ$+ʻ 'ʻ")&ʻ +$ ʻ !" +ʻ
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$'(ʻ &4&'1&+6ʻ X&9!&2" ")&ʻ &,&("$,? 31" &+ʻ #8ʻ 9! +&ʻ #'ʻ &&,6ʻ
-&6ʻ $'(ʻ (&,6[ʻ *) !)ʻ *&,&ʻ 2$?$@-&ʻ "#ʻ +ʻ +$ (ʻ-$"&ʻ $>&+"?ʻ D '.ʻ
ʻ")&ʻ #1,")ʻ 'ʻ")$" 5$," #8ʻ ʻ(ʻ!$--&(ʻ ʻ
$'(ʻ $-+#ʻ ")&ʻ +%$-ʻ ,$'!)&+ʻ #8ʻ ")&ʻ &,&("$,?ʻ &4&'1&ʻ $'(ʻ
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$>&+"?ʻ$-ʻ ")&ʻ+$ (ʻ &,&("$,?ʻ &4&'$&+6ʻ %2-#('.ʻ ")&ʻ 31" &+ʻ #'ʻ
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' #,' +1!)' !)$,"&,&(' $':' #,' ,$'!)' ")&,&#86' 8#,' +1!)' 51,!)$+&'
#'&?6' #,' '' !$+&' ")&' +$%&' +)$--' '#'' $%#1''' "#' '&')1'(,&(' 5#1'(+6'
")&'' &")&,' #'' ")&' 5,#(1!" #'' #8' +1!)' &!& 2"6' #,' #'' ")&' 5$?%&''' "#'
")&%6' ")&,' #--&!"#,' #,' .&''6' #8' +1!)' 51,!)$+&' #'&?6' &9&!1"&' "#'
")&' 51,!)$+&,' $' #'4&?$'!&6' &")&,' 2, '"&(' #,' *, ""&'6' #,' 2$,"-?'
2, '"&(' $'(' 2$,"-?' *, ""&'6' 1'(&,' ")&' $'(+6' #8' ")&' $'(+' #,' #")&,'
5,#2&,"?' #,' 1@>&!"+' $.,&&(' "#' @&' +#-(' #,' &9!)$'.&(6' $'(' . 4&' $' &N
!& 2"' 8#,' ")&' 51,!)$+&' #'&?' 1'(&,' ")&' $'(+' $'(' &4&,?' +1!)'
#'4&?$'!&' $'(' &!& 2"' %$?' @&' $!!#,(' '.' "#' ")&' #,%' +&'' 8#,")' ''
")&' !)&(1-&' "#' ") +' !'' $''&9&(6' #' '' $'?' #")&,' #,%' *) !)' %$?' @&'
(&&%&(' @?' ")&' +$ (' #%% ++ #'&,+' %#,&' !#'4&' &'' $'(' &4&,?' +1!)'
#'4&?$'!&' $'(' &!& 2"' +)$--' @&' $'"&+"&(6' $+' "#' ")&' 9&!1" #'' $'('
+ .' '.' ")&,&#86' @?' *#' E "'&++&+' ' $'(' '' +')&,&@?' (&!-$,&(' ")$''
$'?' 3&&(6' H,$'"6' #,' #'4&?$'!&' +#' %$(&' $'(' . ,$'"&(' #8' ")&' $'(+6
&'(+6' &1' &"#1,6' $'(' #")&,' 31" &+6' $+1$-" &+6' &'"+6' $'(' #")&,'
")&' &, "$@-&' 5,#2&,"?' #8' ")&' ,#*'' '' @?' ")&' +$ (' #%% +N
+ #'&,+6' #'' @&' '.' ,&!#,(&(' #,' ,&. +"&,&(' '' ")&' .&'&,$-' #,' 2$," !1-$,'
&. +"&,' #8' $+' '&+6' +)$--' @&')&-(' "#' $-&'$"&' $'(' (+2#'&' 8,#%' +'
$>&+"?6' +' & ,+' $'(' 1!!&++#,+6' ")&' 5,#2&,"?' #,' #")&,' 1@>&!"+'
")&,&' '' &92,&++&(' "#' @&' !#%2, +&(6' '' $+' 4$-(' $' $''&,' $+' 8' $' !#%N
2-&"&' &1($-' .)' #-('.6' #8' $'(' 1'(&,' +' $>&+"?6' +' & ,+'
$'(' 1!!&++#,+6')$(' @&&'' .,$'"&(6' #,' $+' 8' ")&' +$%&')$(' @&&''
!#'+" "1"&(' @?' $' 8#,%$-' ,#*'')$,"&,6' $'(' 8#--#*&(' @?' $+ '&7

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' '' +)$--' $'(' %$?' @&' -$*81-' '#' 27D' #8'
8#,' ")&' +$ (' #%% ++ #'&,+' #8' +' $>&+"?;+' E##(+6' #,&+"+6' $'(' D #GE!' H
&4&'1&+6' A7AAV<H6

.'20 I#3 #4' 3 ' UU

@"D/D' 3"D' I0' E' I#GD/' /

C #' +/ ^ GIH3 #' .' =DHD C3!' (O O E^ E #D/E' 3 ' D&DHI3D' 2' (#FD62#HD' .'3"D' +/ ^ CD/36' E 7G

(FD62#HD' Z"D#' /D^ H /GDG' #' 3"D' =D4 E3D/' .' 2E #DE' 3 ' OD' "D7G' 3 ' 27 D#23D' 3"D' +/ CD/36' ./ 0' > E' B 25DE36

?DHD C3 . / +I/H"2ED B #D6 3 H #32 # 2 GDH72/23 /6 +/ 0 ED 3"23 # 3"D #D&3 =D#DZ27 . #FDE3 3I/D 3"D ("2/3D/ E"277 H #32 # 2 7D#H" > 7G #4 # 7DI .3"D ADI! D

&4&'1&+6 E#,:+6 $'(1-('.+6 #' ")& $-& #8 $'? & '(6 &1 &"#1,6 #, #")&, 31" &+6 $+1$-" &+6 #, &'"+6 8 +1!) $-& +)$-- @& %$(& "#A")& <$++$- ' ")& &16 "# .,$' $ &!& 2" 8#, ")& 51,!)$+& #'&? #,#")&, #'+ (&,$" #' $.,&&("# @& . 4&' 8#, "@& +$%&6 $'(*) !) &!& 2" +)$-- $-+# !#'"$ ' $ 3&!-$,$" #' ")$" #' ")& '&9" &'&*$- #8 ")& '4&+" "1,& ' 8$4#1, #8 ")& <$++(6 #, #8) + & ,+ #, 3 +2#'&&+6 ")&)$,"&,6 5,&!&2"6 #, #")&, 3&&("# @& .,$'"&(@? #, #' @&)$-8 #8 ")& ,#*' +)$-- !#'"$ ' $ -&'!) #-('. ' -&1 $'(2-$!& #8 ")& &1 #, #")&, #-( ). #, 31"? ' ")& #, . '$- .)"+ #, '4&+" "1,&+ $'(+1!) &!& 2" $'(3&!-$,$" #'6 (&- 4&,&("# ")& <$++$- +# 21,!)$+ '.6 #' 5$?%&'" #8 ")& 51,!)$+& #'&?6 +)$-- @& $ +188 ! &'" &'1'! $" #' $'(<#1!)&, "#) % #,)&,6 #,) + #,)&, & ,+ $'(1!!&++#,+6 1'" - ")& &'&*$- #8 +1!) '4&+" "1,&6 $'(+)$-- @& $ +188 ! &'" E$,,$'" "# ")& $,#'+ #8 ")& #1," #8 9!)&C1&, ' $'($-@ #")&,+6 *)&' $ &'&*$- 18 ")& '4&+" "1,& +)$-- @& ,&C1 ,&(6 "# .,$'" +1!) ,&'&*&('4&+" "1,& * ") $ -&'!) #-('.

+/ C/ D3 /E! H .D#^ 32 7DG E323DE 026CI/H"2ED 3"D D #GE! H 2..DH3 #4 3"D E2OD

< '(@& " 81,")&, &'$!"&( )$" +)$-- $'(%$? @& -$*81- 8#, ")& 5,#2, &"#,+ #8 &'"$ -&(+"$"&+ ' $'(8#, ")&, ,1+"&&+6 $'(")& 1"#,+6 1,$"#,+6 $'((% ' +",$"#,+ ' $* #8 +1!) 5,#2, &"#,+6 "# 21,!)$+& ")& & '(6 &1 &"#1,6 $'(#")&, 31" &+6 $+1$-" &+6 &'"+6 $'($-- #")&, ")& $'(&4&'1&+ (1& "# $'(&9 . @-& @? ")& ,#* '6 $'($88&!" '. +1!) +"$"&+6 $'(*) !)")& +$ (#%% ++ #'&,+ $,&)&,&@? $1")#, L&("# +&-- $'((+2#+& #86 $'(& ")&, "# (+@1,(&' ")& , +"$"&+ 8,#% ")& 5$?%&'" #8 +1!) & '(6 &1 &"#1,6 #, #")&, 31"?6 $+1$-"?6 #, &'"6 #, "# %$:& ")& 51,N !)$+& #'&? #8")& +$%& $ 3&@" $'(1,(&' #' +1!) &'"$ -&(+"$"&A ' - :& $''&, $+ ")& 1%6 2$ (8#, &(&%2" #' #8 ")& $'($9 + %$(& $ 1,(&' #" &'"$ -&(5,#2&,"? ' &,%+ #8 $' ! 2$++&(' ")& #,"?B+&!#'(&$, #8 ")& & . #8 + -$"& $>&+"? D '. ")&),(6 '""1-&(> * 7 5 8 ! * > * - * ' " 7 > * . 0 * " > * 5 * 5 8 * #, #8 $'? #")&, !" #, !"+ #8 5$,- $%&' ,&-$" #' ")&,&"# '#* 8#,!&

(0 O EE #^ D/E 3 'H2IED * IC7 H23DE . 277 (#FD6^ 2#HDE! * DDGE! H 3 'OD /D4 E3D/DG 2#G C/DED/FDG # 3"D ("2#^ HD/6 . H 3^ 72#G N 2#G 2 B #I3D / * H]D3 . DFD/6(#FD6^ 2#HD! H 3

< 5,#4 (&($-*$?+6 $'(@& " 81,")&, &'$!"&(6)$" ")& +$ (#%% ++ #'&,+ 8#, ")& %& @& '. #8 + $>&+"?;+ E##(+6 #,&+"+6 $'(&4&'1&+6 E#,:+6 $'(1-('.+ +)$-- !$1+& 312- !$"&+ #8 $-- #'4&?$'!&+6 3&&(+6 $'(3#!1%&'"+ *)&,&@? $'? $'(+ #, #")&, 5,#2&,"? #, 1@>&!"+ ' +)$-- @&)&,&$8"&, 21,!)$+&(#, "$:& ' 9!)$'.& @? ")&%6 8#, #, #' @&)$-8 #8 + $>&+"?6 + & ,+ #, 1!!&++#,+6 1'(&, ")& 1")#, "? #8 ") + !"6 #, *) !) +)$-- @& !#'4&?&(#, -&$+&("# + $>&+"?6 + & ,+ #, 1!!&++#,+6 #, "# $'? 5&,+#' ' ,1+" 8#, %6 #,)&%6 $'(#8 $-- &$+&+ "# @& %$(& #, .,$'"&(@? ")& +$ (#%% ++ #'&,+ 1'(&, ")& 1")#, "? #8 ") + !") + !"6 #8 $'? #")&, #, &, "$@-& 5,#2&,"? #8 1@>&!" #8 ")& ,#* ' $'(#8 $-- #'4&?$'!&+ 3&&(+6 $'(* (IOD23D

3#!1%&'"+' *)&,&@?' $'?' 5$,"' #8' ")&' $'(+' #,' #")&,' 5,#2&,"?' #,' @& D#3D/DG'
1@>&!"+' #8' ")&' ,#*'' '' '+)$--' @&' .,$'"&(6' +#-(6' &9!)$'.&(6'
#,' !#'4&?&('1'(&,' ")&' 5#*&,+' #8' ") +' !"6' "#' @&' ",$'+% ""&('"#' ")&' #88 !&
88 !&' #8')$'!&,?' #8' ' ")&,&' "#' @&' ,&!#,(&(' #,' ,&. +"&,&(' '
$'(' &4&,?' +1!)' 312- !$"&' +)$--' @&' ")&,&' 2,&+&,4&(' $'(' ,&!#,(&('
$%#'.' ")&' #")&,' &!#,(+' $'(' 1' %&'"+' ,&-$" '.'"#' ")&' $'(+' #,'
#")&,' 5,#2&,"?' #,' 1@>&!"+' #8' ")&' ,#*'' 2,&+&,4&(' '' +1!)' 88 !&'
$'('$' '1"&' #,' 3#!:&'' #8' &4&,?' +1!)' #'4&?$'!&6' 3&&(6' #,' 3#!1N
%&'"' +)$--' @&,' &'"&,&(' $'(' 2,&+&,4&(' @?' ")&' +$(' #%% ++#'&,+' #8'
+' $>&+"?;+' E##(+6' #,&+"+6' $'(' &4&'1&+6' E#,:+6' $'(' 1-('.+6'
'' ")&,' 88 !&

< ' '('@&' "81,")&,'&'$!"&(')$"' '#"' #'-?' ")&' #, . '$-' #'B' '/4 #27(#'
4&?$'!&6' 3&&(6' #,'#")&,' 3#!1%&'"' @?' *) !)' $'?' $'(+' #,' #")&,' 7&?$'!&'
&, "$@-&' 5,#2&,"?' #,' 1@>&!"+' "#' *) !)' ") +' !"' ,&-$"&+' +)$--' @&' (+B' 7P!$& "P&,&B
2#+&(' #8' 1'(&,' ")&' 5,#4+#'+' #8' ") +' !"6' @1"' $-+#' ")&' 312- !$"&' .!' /' (C6'
")&,&#86' "#' @&' +#",$'+% ""&('$+' $8#,&+$ (6' #,' $' #2?' #,' 9",$!"' #8' +1!)' /' &3/2H3' .'
312- !$"&6' $""&+"&('@?' ")&' 88 !&,'8#,'")&' %&'@&' '.' '' *)#+&' 1+"#(?'
")&' +$%&' +)$--' ,&%$ '6' X$'(' *) !)' #2 &+' ")&' +$ (' 88 !&,' +')&,&@?'
$1")#, L&(' $'(' ,&C1 ,&(' "#' .,$'' "#' $'?' 5&,+#'' $22-?' '.' 8#,' ")&' (I/3E' F7'
+$%&&6' #'' 5$?%&'"' #8' $' &&' #8' '&') -- '.' 8#,' &4&,?' +1!)' #2?6' $'(' GD#HD' .'
8' ")&' +$%&' +)$--' !#'++' #8' %#,&' ")$'' &4&'"?B"*#' 7#,(+6' ")&'' #8'
$' 81,")&,' &&' #8' '&') -- '.' 8#,' &4&,?' &4&'"?B"*#' E#,(+' #4&,' '
")&' 8 ,+' &4&'"?B"*#' E#,(+6[+)$--' @&' $(% ""&(' '' $--' #1,"+'
$+' 4 (&'!&' #8' ")&' .)' $'(' "-&' #8' ")&' 51,!)$+&,+6' H,$'"&&+6
&++&&+6' $'(' $--' 5&,+#'+' !-$ % '.' 1'(&,' ")&%6' "#' ")&' 1@>&!"+' "#'
*) !)' +1!)' #'4&?$'!&+6' 3&&(+6' #,'#")&,' 3#!1%&'"+' +)$--' ,&-$"&

' '('@&' "81,")&,'&'$!"&(')$"' &4&,?' #'4&?$'!&6' 3&&(6' #,' FD/6' *DDG'
#")&,' 3#!1%&'"' *)&,&@?' $'?' $'(+' #,' #")&,' &, "$@-&' 5,#2&,"?' #,' #/ 7DG' #'
1@>&!"+' "#' *) !)' ") +' !"' ,&-$"&+6' #,' $'?' &,%' #8' &$,+' #,' '"&,&+"' ("2IHD/6' #'
")&,&'6' +)$--' @&' !#'4&?&(' #,' -&$+&(' "#' +' $>&+"?6' +' &,+' #"' H 372#G' 3'
1!!&++#,+6' #,' "#' $' ,1+"&&' #,' ,1+"&&+' 8#,' +' $>&+"?6' +' &,+' OD' .'7]D'
#,' 1!!&++#,+6' 1'(&,' ")&' 1")#, "?' #8' ") +' !"6' +)$--6' * ")#1" $'?' A /HD' 2E' .'
#")&,' ',#-%&'"#,' &. +",$" #'' ")&,&#8' ")$'' ' ")&' 88 !&' #8')$'!&,?' /D4 E3D/DG' #'
*' '$+' $8#,&+$ (6' @&' #8' ")&' -:&' #,!&' '' 8$4#1,' #8' +' $>&+"?6']E' .'
+' &,+' $'(' 1!!&++#,+6' $+' 8' ")&' +$%&')$(' @&&'' #,' *$+' ',#--&(' #,' (I#H 7 2#G'
,&. +"&,&(' '' ")&' ##:+' #8' #1'!-$'(' &++#'6' #,' '' ")&' .&'&,$-' #,' DEE #' /'
+2&! $-' &. +"&,' #8' $+ '&+' '' ")&' #1'"?6'),&6' #,' "&*$,",?' * ") '' =D4 E3D/' .'
*) !)' ")&' $'(+' #,' #")&,' &, "$@-&' 5,#2&,"?' #,' 1@>&!"+' +)$--' @&' 2E #DE
+ "1$"&

' 5,#4 (&(' $-*$?+6' $'(' @&' "81,")&,' &'$!"&(6')$"' $' #"&' #,' ' BDO /2 '
&%#,$'(1%' #8' &4&,?' +1!)' #'4&?$'!&6' 3&&(6' #,' #")&,' 3#!1%&'"6' GIO' .'DFD5
+&"' '.' 8#,")' ")&' 3$"&' ")&,&#86' ")&' $%&+' #8' ")&' R7 +2#'&,' #,' H,$'"&,
$'(' 3 +2#'&&' #,' H,$'"&&6' $'(' ")&' -&$(' '.' $%&+' #8' ")&' $'(+' #,' 3"D E.FD/27'
&, "$.&+6' $'(' #8' ")&' #1'"?' #,' #1'"&+' *)&,& '' ")&' +$%&' $,&' +2/3 HI '
+ "1$"&(6' +)$--6' * ") '' #1,"&&'' 3$?+' $8"&,' ")&' 9&!1" #'' ")&,&#86' #,'
$+' +##'' ")&,&$8"&,' $+' 2#++@-&6' @&' &'"&,&(' @?' ")&' H,$'"&&' '' ")&'
'1"&' ##:' #8' ")&' &. +"&,' #8' $+ '&+' $"' . " ' #8' ")&' 3$"&']' .' 37'
#'' *) !)' +1!)' #"&' #,' &%#,$'(1%' +' 2,&+&'"&(6' $'(' $-+#' 12#'' ")&' =D4 E3D/' '
$,. '' #8' ")&' '",?' '' ")&' &. +"&,' #8' $+ '&+6' .&'&,$-' #,' 2$," !1-$,6'
#8' ")&' -$+' '+",1%&'"' #8' $+ '&' '' ")&' 5,#2&,"?' #8' ")&' $'(+' #,' $8"&
&, "$.&+

D&DHI3 # 3"D/D . &, "$.&+ $- &'$"&(6 ,&!#,(&('+1!) &. +"&, ' $'(+1() '", &+ +)$-- @& +# %$(& * ")#1" && #, & *$,(2$?$@-& ")&,&8#,

CC7H23 # . +I/H"2ED B # DE ' (@& " 81,")&, &'$!"&(6)$" $-- 1%+ "# @& ,&!& 4&(1'(&, ")& 1")#, "? #8 ") + !"6 8#, #, ,&+2&!" #8 $'? $-&+6 #, 8#, C1$- "? #8 9!)$'.& #' $'? 9!)$'.& #8 $'? #8 ")& +$ ($'(+ #, #")&, 5,#2&,"? #, 1@>&!"+ "# *) !) ") + !" ,&-$"&+6 +)$-- @& $22- &(")& 5$?%&'" #8 ")& 51,!)$+& #' &+ #' ")& 51,!)$+& #8 $'? $'(+ #, #")&, 5,#2&,"? #, 1@>&!"+ 1'(&, ")& 1")#, "? #8 ") + !"6 #, ")& 51,!)$+& #8 $'? &$+& #8 $'? 5$," #8 ")& $'(+ $'(#")&, 5,#2&,"? #, 1@>&!"+ #8 ")& ,2* *) !) %$? @& @#1.)" 1'(&, ")& 1")#, "? #8 ") + !"6 $'(5$?%&'" #8 ")& #' &+ "# @& 2$ (8#, C1$- "? #8 9!)$'.& #' $'? 9!)$'.& "# @& %$(& 1'(&, ")& 1")#, "? #8 ") + !"6 $'(#8 ")& 92&'!&+ #8 ")& +$ (#%% ++ #'&,+ #8 + $>&+"?;+ E##(+> #,&+"+6 $'(&4&N '1&+6 E#,:+6 $'(1 -('.+ #, ,&-$" '. "# +1!) 51,!)$+&+ $'(9!)$'.&+6 $'(")& 5$?%&'" #8 ")& #' &+ "# @& 2$ (8@, ")& &(&%2" #' #, 51,!)$+& #8 $'? $'($9 *) !) %$? @& ,&(&&%&(#, 21,!)$+&(@? ")& +$ (#%% ++ #'&,+6 $'(#8 ")& 92&'!&+ #8 ")& +$ (#%% ++ #'&,+ #, ,&-$" '. "# +1!) 51,!)$+& #, &(&%2" #'6 $'(")& 3 +!)$,.& #8 $'? '!1%@,$'!&+ #, 1,")&'+ *) !) '#* #,)&,&$8"&, $,& #, %$? @& !)$,.&(12#" #, $88 " $'? #8 ")j7+$ ($'(+ #, #")&, 5,#2&,"? $'(1@>&!"+ #8 ")& ,#* "# E) !) ") + !" ,&-$"&+

I0E# 3 0^ 0DG 23D76 Z2#3DG 3 0D #FDE3DG # 3"D +I07H A I#GE ' (@& "81,")&, &'$!"&( )$" "+)$-- @& -$*81- 8#, ")& +$ (#%% ++ #'&,+ 8#, ")& %& @& '. #8 + $>&+"?+ E#@(+6 #,&+"+6 $'(&4&'1&+6 E;#,:+6 $'(1 -('.+ "# !$1+& $'? 1,$+ *) !) +)$-- @& ,&!& 4&(8#, #, ,&+2&!" #8 $'? $-&+ #, 9!)$'.&+ #8 "%? #8 ")& $'(+ #, #")&, 5,#2&,"? #, 1@>&!"+ #8 ")& ,#* "# *) !) ") + !" ,&-$"&+6 $'(*) !) %$? '#" @& %%&($"&-? *$'"&(8#, " ,& 51,2#+&+ "# *) !) ")& +$%& $,&)&,&@? %$(& $22- !$@-&6 "# @& -$ (#1" ")& %&$'" %& ")& 51,!)$+& #8),&& N 8 B #'+#- ($"&($': ''1"&+6 #,),&& 5#1'(+ * &(1!&($': ''1"&+6 ")& $%& #8 ")& #,(.) ,&$+1,&,6 #, #8 ")& #%% ++ #'&,+ #8 + $>&+"?;+ ,&$+1,?6 *) !) $%& ")& H#4&,'#, $'(#%2$'? #8 ")& $': #8 . $,&)&,&@? $1")#N , L&($'(,&C1 ,&("# 2&,% ,$'+8&,+ "# @& %$(& #8 ")& '#1"&+ "# @& +# 21,!)$+&(6 $'(+1!) ,$'+8&,+ +)$-- @& $!!&2"&(@? ")& +$ (#%% ++ #'&,+ #8 + $>&+"?;+ E##(+6 #,&+"+6 $'(&4&'1&+6 E#,:+6 $'(1 -('.+ ")& $%& $'(#" @&)$-8 #8 ")& +$ (#,(.) ,&$+1,&,6 #, ")& +$ (#%% ++ #'&,+ #8 + $>&+"?; ,&$+1,?

* F GD#GE . 3 3IH]E 2#G ##I 3 DE 3 0D 06 2#] . #472#G C72HDG 3 (/DG 3 . 3"D (0 0 E ' (@& "81,")&, &'$!"&( )$" ")& %#1' "#8 ")& 3 4 (&'(+ #8 ")& "#!:+ $'(''1"&+ "# @& 21,!)$+&($+ -$+ $8#,&+$ (+)$-- 8,#%6 %& "# %&6 $+ ")& +$ (3 4 (&'(+ +)$-- @&!#%& (1&6 @& 2-$!&(@? ")& H#4&,'#, $'(#%2$'? #8 ")& $': #8 . "# ")& ,&(#8 ")& +$ (#%% ++ #'&,+ #8 + $>&+"?;+ E##(+6 #,&+"+6 $'(&4&'1&+6 E#,:+6 $'(1 -('.+ ")&, !!#1" * ") ")& $': $'(+# %1!) #8 ")& 3 4 (&'(+ $+ +)$--)$4& @&!#%& (1& ,&+2&!" #8 "#!:+ 21,!)$+&(* ") #' &+ *) !) +)$--)$4& $, +&' 8,#%6 ")& $-& #, 9!)$'.& #8 $'? #8 ")& $'(+ #, #")&, 5,#2&,"? $'(1@>&!"+

1@>&!"+ˢ #8ˢ")&ˢ ,#*'ˢ"#ˢ *) !)ˢ") +ˢ !"ˢ ,&-$"&+ˢ +)$--ˢ @8& $22- &(ˢ $'(ˢ
(+2#+&(ˢ #8ˢ @?ˢ")&ˢ +$ (ˢ #%% ++ #'&,+ˢ 'ˢ ")&ˢ +$%&ˢ $''&,ˢ $'(ˢ 8#,ˢ
")&ˢ +$%& 51,2#+&+ˢ $+ˢ $'(ˢ !#'+ (&,&(ˢ 'ˢ $--ˢ ,&+2&!"+ˢ $+ˢ 5$,"ˢ #8ˢ")&ˢ
$''1$-ˢ '!#%&ˢ #8ˢ ")&ˢ $'(+ˢ $'(ˢ#")&,ˢ 5,#2&,"?ˢ $'(ˢ 1@>&!"+ˢ #8ˢ ")&ˢ
,#*'ˢ 'ˢ ,

<ˢ '(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(ˢ)$"ˢ *)&'ˢ $'(ˢ +#ˢ #8"&'ˢ $+ˢ "ˢ
+)$--ˢ @&ˢ '&!&++$,?ˢ #,ˢ &92&(&'"ˢ"#ˢ ,$ +&ˢ @?ˢ $-&ˢ #8ˢ $'?ˢ #8ˢ")&ˢ "#!:+ˢ
2,ˢ ''1 " &+ˢ +#ˢ"#ˢ @&ˢ 21,!)$+&(ˢ $+ˢ $8#,&+$ (ˢ $'?ˢ 1%ˢ #8ˢ #'&?ˢ 8#,ˢ
")&ˢ 51,2#+&+ˢ"#ˢ *) !)ˢ #' &+ˢ"#ˢ @&ˢ ,&!& 4&(ˢ 1'(&,ˢ ")&ˢ 1")#, "?ˢ #8ˢ
") +ˢ !"ˢ 8,#%ˢ $-&+ˢ #,ˢ 9!)$'.&+ˢ #8ˢ $'?ˢ #8ˢ ")&ˢ $'(+ˢ $'(ˢ #")&,ˢ
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,$ +&(ˢ @?ˢ")&ˢ $-&ˢ #8ˢ")&ˢ +$ (ˢ "#!:+ˢ $'(ˢ ''1 " &+ˢ +)$--ˢ @&ˢ 2$ (ˢ '"#ˢ
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/2#E.D/ˢ .ˢ 3 H]

CC7 H23 #ˢ

H3ˢ /D723DEˢ

##I 273#ˢ H O D!ˢE I O5DH3ˢ 2Eˢ 2. /DE2 G!ˢ H2/ / DG

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'(*)&,&$+ !&,"$ ' &"#1, 31" &+6 $+1$-" &+6 $'(#")&, 31" &+ $'(&'"+ 2&,"$ '. "# ")& $'(&4&'1&+ #8 ")& ,#* $'(5, '!& $'("&*$,(#8)$4&) ")&,"# @&& ' ,&!& 4&(@? ")& 88 !&,+ #8 ")& #1,"+ #8 R1+" !&6 #, @? ")&)&, 88+ #8 ")& #1'N "&+6),&+6 #, "&*$", &+ #8 ,&+2&!" 4&-? $'(" * -- @& %#+" !#'4&' &'' ")$" ")& +$%& +)#1-(@& !#--&!"&($'(,&!& 4&(@? ")& .&'"+ #, #--&!"#,+ ")&,&#8 $22# '"&(#, "# @& $22# '"&(1'(&, ")& 5,#4 + #'+ #8 ") + !" @& ")&,&8#,& 81,")&, &'$!"&( )$" *)&' $'(+# +## $+ +1!) .&'"+ #, #--&!"#, +)$-- @& $22# '"&(+1!) &"#1, 31" &+6 $+1$-" &+6 $'(#")&, 31" &+ $'(&'"+6 2&,"$ '. "# ")& $'(&4&'1&+ #8 ")& ,#*' $'(5, '!& $'("&*$,(#8 = +)$-- '# -#' .&, @& !#--&!"&(@? ")& 88 !&,+ #8 ")& #1,"+ #8 R1+" !&6 #, @? ")&)&, 88+ #, #")&,+ 88 !&,+ *)#)$4&)&,&"#8#,& !#--&!"&($'(,&!& 4&(")&%6 @1" +)$-- @& !#--&!"&($'(,&!& 4&(@? ")& +$ (#--&!"#,+ ")&,&#8 $'($'(+1!)) ")&, #--&!"#,+ +)$-- @& &'" -&("# $'(,&!& 4& ")& +$%& &+) ")&,"# !& 88 !&,+ #8 ")& #1,"+ #8 R1+" !&6)&, 88+6 #, #")&,+ 88 !&,+)$4&)&,&"#8#,& @&& ' &'" -&("# $'(,&!& 4&(12#' ")& 5$?%&'" #8 $'? #8 ")& +$ (&"#1, 31" &+6 $+1$-" &+6 #, #")&, 31" &+ #, &'"+ ,&+2&!" 4&-?

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")&' #' &+' "#' $, +&' @?' ")&' $-&' #,' #")&,' 3 +2#+ " #'' ")&,&#86' "#' @&' 2#G' 3DZ2/G'
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$(% ""&(6 $'(',#--&(6 $'(+)$--)$4& !#'" '1&(' +1!) &,4 !& 8#,
")& +$ (&,% #8 &4&' &$,+ $'(!&,"$ ' #")&, '$!"%&'"+ $,&
!#'"$ '&(' ")& +$ (!"6 ,&.1-$" ' . ")& (% ++ #' $'(5,$!" !& #8
#"$, &+ 51@- !] '(*)&,&$+ ")& 5,#4 + #'+ #8 ")& +$ (!" $,& '
")& , 2&,$" #' 8#1' ("# @& &9",&%&-? '!#'4&' &'" ' +#%& 5-$!&+
(+"$'" 8,#% ")& "? #8 U & " ")&,&8#,& &'$!"&(@? ")&
D ' . ;+ %#+" 9!&--&'" $>&+"?6 @? $'(* ") ")& (4 !& $'(#'+&'"
#8 ")& #,(+ 2 , "1$- $'(&%2#,$-6 $'(#%%#'+6 ' ") + 2,&+&'"
5$,- $%&'" $++&%@-&(6 $'(@? ")& 1")#, "? #8 ")& +$%&)$" =DH 3DG H3
8,#% $'($8"&, ")& 2$++ ' . #8 ") + !" +# %1!) #8 ")& +$ (,&! "&(7 O 3DG 3
!" $+ ,&C1 ,&+ ")$" 5&,+#'+ "# @& $(% ""&(#"$, &+ 51@- ! +)$-- #G # 2#G
T)$4& D# B 7DE
3"D/D .

Q U a ' ' B ' ' (2C U

)$4&' +&,4&(' $' -&, :+) 2' #,' 22,&'" !&+) 2' 8#,' &4&'' &$,+6' $+'
)&,& 'B@&8#,&' %&'" #'&(6' +)$--6' +#' 8$,' $+' ")&' +$%&' $ 8&!"+' 5&,+#'+'
@& '.' ""#,' &+6' #- ! "#,+6' #,' 5,#!"#,+' $(% ""&(' $+')&,& 'B$8"&,' %&'N
"#'&(6' @&' - % "&(' $'(' !#'8 '&(' "#' ")&' "?' #8' '$'(' @&," &+'
#8' / * ' ")&' #,#1.)' #8' $ +' ' ")&' ,!1 '' #8' &''
-&+' 8,#%' ")&' '.8 ' '' ")&' +$ (' "?' #8' ,

33 /# DE O 26' OD' 2G O 33DG' 2E') 32/ DE' I3' .'3" ED' O 3E

' '(' @&' '' 81,")&,' &'$!"&(6')$'' 8,#%' $'(' $8"&,' ")&' 2$++ '.'
#8' ") +' !'' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' $+"&,' #8' ")&' #1,"'
#8' $!1-" &+' #8' +' H,$!&' ")&' #,(' ,!)@ +)#2' #8' " ' ''
' 8,#%' %&' "#' %&6' 12#'' @& '.' +$" +8 &(' $+' *&--' #8' ")&'
"'&++' #8' ")&' 5&,+#'' $+' #8' ")&' 92&(&'!?' #8' ")&' 22# '"%&'"6' "#'
$22# '"6' $(% "6' $'(' !$1+&' "#' @&' +*#,'' $'(' ',#--&(' '' ")&' +$ (' #1,"'
#8' $!1-" &+' $'?' 5&,+#'' #,' 5&,+#'+' ,&+ ('.' $'' $'?' 5-$!&' (+"$''
%#,&' ")$'' &'' -&+' 8,#%' ")&' '.8 ' '' ")&' +$ (' "?' #8'
' *)#' +)$--')$4&' @&&'' 2,&4 #1+-?' $(% ""&(6' +*#,'6' $'(' ',#--&('
$'' ""#,'&?' #,' #- ! "#,' '' $'?' #8' ")&' #1,"+' $"' / * ' #,' *)#'
+)$--' @&' $' 5] #!"#,' 2,$!" + '.' '' $'?' !!-&+ $+" !$-' #1,"6' "#' @&' $'
#"$,?' 51@- !' #,' #"$, &+' 51@- !' "#' 2,$!" +&' * ") '' $'?' 3 +", !'' ''
*) !)' '' +)$--')$4&' @&&'' %$(&' "#' $22&$,' "#' ")&' +$ (' $+"&,' #8' ")&'
#1,"' #8' $!1-" &+' ")$'' ")&,&' +' '#'' X#,' +)$--' '#'')&,&$8"&,' @&[' $'
+188 ! &'' 1%@&,' #8' +1!)' #"$, &+' 51@- !' $(% ""&('#,' "#' @&' $(% ""&('
1'(&,' ")&' 5,#4 + #'+' #8' ")&' +$ (' ,&! "&(' !"8#,' ")&' (17' #'4&' &'!&'
$'(' !!#%%#($" #'' #8' +1!)' 3 +", !"6' $+' ")&' +$ (' $+"&,' #8' ")&'
#1,"' #8' $!1-" &+' +)$--' ") '.' 8 "6' $'(' '#'' &-+&*)&,&' $'?' $*' #,'
V+$.&' "#' ")&' !#'",$,?' '#"* ")+"$'('.

) 3'3 '213" ^ / dD') 32/ DE' 2CC #3DG' 3"D/DO6'3 '2H3' #' #G #' /' Z 3" #' D#' B 7DE'3"D/D .

' 5,#4 (&(' $-*$?+6' $'(' @&' '' 81,")&,' &'$!"&(')$'' '#") '.'
)&,& '' !#'"$ '&(' +)$--' &9"&'(' "#' $1")#, L&' $'?' #"$,?' *)#' +)$--' @&'
$(% ""&(' @?' 4 ,"1&' #8' ") +' !'' "#' 2,$!" +&' $+' $' #"$,?6' #,' "#' 2&,8#,%
#,' !&," 8?' $'?' '#"$, $-' !'' *)$"+#&4&,6' * ") '' ")&' +$ (' "?' #8'
' ")&' @&," &+' #8' / * ' ")&' #,#1.)' #8' $ +'
#,' * ") '' ")&' ,!1 '' #8' &'' -&+' 8,#%' ")&' '.8 ' '' ")&'
+$ (' "?' #8' ,

) 32/6' 2G^ O 33DG' I#GD/' 3" E' H3!'C/2H^ 3 E #4' I3' .' " E' * E3/ H3!'3 ' OD' E3/ IH]' ..' 3"D' = 7?' .' A2H I73 DE

< ' 5,#4 (&(' $-*$?+6' $'(' @&' ''81,")&,'&'$!"&(6')$'' 8'$'?' #"$,?'
$(% ""&(' @?' 4 ,"1&' #8' ") +' !'' +)$--' 2,$!" +&' $+' $' #"$,?6' #,' 2&,8#"%'
#,' !&," 8?' $'?' '#"$, $-' ' *)$"+#&4&,6' #1'' #8' ")&' 3 +", !'' +2&! 8 &('
$'(' - % "&(' '' $'(' @?' ")&' $!1-"?' "#' @&' .,$'"&(' "#') %' @?' 4 ,"1&'
#8' ") +' !"6' #,' * ") '' ")&' "?' #8' ' ")&' @&," &+' #8' / =
* ' ")&' #,#1.)' #8' $ +' #,' ")&' ,!1 '' #8' &'' -&+'
8,#%' ")&' '.8 ' '' ' $8#,&+$ (6' ")&'' $'(' '' &4&,?'
+1!)' $+&' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #1,"' #8' $!1-" &+6' #''
#%2-$ '' %$(&' '' $' +1%%$,? E$?6' $'(' (1-?' 4&, 8 &(' #'' $'")6' "#'
!$1+&' &4&,? +1!)' #"$,?' +#' #8&&'('.' "#' @&' +",1! :' #8&' ")&' #--' #8'
$!1-" &+6' $'(' &4&,?' 5&,+#'' +#' +",1! :' #8&' +)$--' ")&'!&8#,")' 8#,' &4&,'
$8"&,' @&' *)#--?' (+$@-&(' 8,#%' 2,$!" + '.' $+' $' #"$,?' #,' 2&,8#,% '.'
#,' !&," 8? '.'$'?' '#"$, $-' !'' *)$"+#&4&,6' $'?' ") '.')&,& '' !#'"$ '&('
"#' ")&' !#'",$,?' '#"* ")+"$'('.

3] 5, '"&(' @?' ' ' $'(' ' + '
5, '"&,+' "#' ")&' D '.;+' %#+'' 9!&--&'' $>&+"?'

)) ' ʿ = ' ʿ ʿ Y = '

B ʿ ʿ =

(+ ʿ

ʿ H3ʿ . /ʿ 3"Dʿ CC #3 OD#3ʿ .ʿ H #FD# D#3ʿ +72HDEʿ
. /ʿ 3"Dʿ " 7G #4ʿ .ʿ EE dDEʿ #ʿ . ʿ 2#Gʿ
[Q3"ʿ Q _

E ʿ @?ʿ $ʿ "$"1"&ʿ %$(&ʿ 'ʿ ")&ʿ 9")ʿ &$,ʿ #8ʿ ")& & . 'ʿ #8ʿ D '.ʿ ")&ʿ &!#' (ʿ "ʿ *$+ʿ #,($ '&(ʿ ")$"ʿ = Hʿ ʿ H V

")&ʿ R1+" !&+ʿ $++ .'&(ʿ "#ʿ "$:&ʿ ++ L&+ʿ $'(ʿ (&- 4&,ʿ ")&ʿ H$#-+ʿ +)#1-(ʿ)#-(ʿ ")& ,ʿ &++ #'+ʿ 'ʿ ")&ʿ 2, '! 2$-ʿ $'(ʿ !) &8ʿ #*'+ʿ #8ʿ &4&,?ʿ #8ʿ ")&ʿ #1'" &+ʿ *)&,&ʿ ")&ʿ) ,&ʿ #1,"+ʿ #8ʿ ")&ʿ +$%&ʿ #1'" &+ʿ +)#1-(ʿ @&ʿ)#-(&' ʿ '(ʿ *)&,&$+ʿ @?ʿ $ʿ "$"1"&ʿ %$(&ʿ 'ʿ ")&ʿ -&4&'")ʿ - ! ! 1ʿ &$,ʿ #8ʿ ")&ʿ +$%&ʿ & . '6ʿ ,&! " '.ʿ +#ʿ %1!)ʿ #8ʿ ")&ʿ +$ (ʿ "$"1"&ʿ #8ʿ ")&ʿ 9")ʿ &$,ʿ $+ʿ +ʿ)&,& 'B@&8#,&ʿ ,&! "&(6ʿ $'(ʿ +"$" '.ʿ ")$"ʿ ")&ʿ +$ (ʿ "$"1"&ʿ *$+ʿ 'ʿ 2$,"ʿ 2,&>1(! $-ʿ $'(ʿ ., &4#1+ʿ "#ʿ ")&ʿ 5&#2-&ʿ #8ʿ (4&,+ʿ #1'" &+ʿ 'ʿ . ʿ "ʿ *$+ʿ 2,#4 (&(ʿ ")$"ʿ ")&ʿ)$'!&--#,ʿ #8ʿ . ʿ 8#,ʿ ")&ʿ %&ʿ @& '.ʿ +)#1-(ʿ)$4&ʿ 5#*&,ʿ ")&,&#8ʿ "#ʿ %$:&ʿ $'(ʿ 2,#4 (&ʿ &%&(?6ʿ @?ʿ (4 !&ʿ #8ʿ ")&ʿ R1+" !&+6ʿ 8,#%ʿ %&ʿ "#ʿ %&ʿ *)&'ʿ &&(ʿ 7 +)#1-(ʿ @&6ʿ '#"* ")+"$'('.ʿ ")&ʿ +$ (ʿ "$"1"&] '(ʿ *)&,&$+ʿ ")&ʿ 5-$!&+ʿ $"ʿ *) !)ʿ ")&ʿ ++ L&+ʿ $,&ʿ '#*ʿ)&-(ʿ 'ʿ 4$,#1+ʿ #1'" &+ʿ #8ʿ . ʿ $'(ʿ / ʿ $,&ʿ '!#'4&' &'"ʿ "#ʿ ")&ʿ ')$@ "$'"+ʿ ")&,&#86ʿ $'(ʿ "ʿ *#1-(ʿ !#'(1!&ʿ "#ʿ ")&ʿ %#,&ʿ !)&$26ʿ +2&&(?6ʿ $'(ʿ &88&!"1$-ʿ (% ' +",$" #'ʿ #8ʿ R1+" !&ʿ "#ʿ $22# '"ʿ #")&,ʿ 5-$!&+ʿ '+"&$(ʿ ")&,&#8ʿ 8#,ʿ ")&ʿ)#-('.ʿ #8ʿ ++ L&+ʿ @1"ʿ 3#1@"+ʿ %$?ʿ @&ʿ &'"&,"$ '&(ʿ *)&")&,ʿ "8 $"ʿ @>&!"ʿ !$'ʿ @&ʿ 81--?ʿ &88&!"&(ʿ @?ʿ 4 ,"1&ʿ #8ʿ ")&ʿ "$"1"&+ʿ)*;& 'B@&8#,&ʿ ,&8&,,&(ʿ "#] &ʿ "ʿ ")&,&8#,&ʿ &'$!"&(ʿ @?ʿ ")&ʿ D '.;+ʿ %#+"ʿ 9!&--&'"ʿ $>&+"?6ʿ @?ʿ $'(ʿ *")ʿ ")&ʿ (4 !&ʿ $'(ʿ #'+&'"ʿ #8ʿ ")&ʿ #,(+ʿ 2 ,"1$-ʿ $'(ʿ &%N 2#,$-6ʿ $'(ʿ #%%#'+6ʿ 'ʿ ") +ʿ 2,&+&'"ʿ 5$,-ʿ $%&'"ʿ $++&%@-&(6ʿ $'(ʿ @?ʿ ")&

?DH 3DG 32^ 313DE # C2/3 /DCD27DG

")& 1")#, "? #8")& +$%&6)$" +# %1!)' #8 &$!)' #8 ")& +$ ("$"1"&+ $+ +)&,& 'B@&8#,& ,&! "&(+)$-- @& $'(")& +$%& +)&,&@? ,&2&$-&(

> E B25DE36 # (I#H 7 026 G /DH3 23 Z"23 +72HDE #2#6 (I#36 EE dDE 2#G DEE #E . 2 7 *D7 FD/6 E"277 OD "D7GJ 2#G 3"23 3"D6 026 OD " 7GD# # O /D 3"2# '#D +72HD # 2 (I#36 # 3"D E2OD (/HI 3

' (@& " (&!-$,&($'(&'$!"&(')$" + $>&+"?6 @? $'(* ")' ")& (4 !& #8 + #+" #'#1,$@-& 5, 4? #1'! -6 +)$--)$4& 5#*&, 8,#%6 %& "# %& "# #,(&, $'((,&!" $" *)$" 5-$!& #, 5-$!&+ ' $'? #1'"? " . ' #, / ' ")& ++ L&+ $'(&++ #'+ 1'(&, ")& #%% ++ #'+ #8 H$#- 3&- 4&,?6 $'("#")&, #%% ++ #'+ 8#, ")& 3 +2$"!)' #8 4 - $'(, % '$- 1+ '&++6 +)$-- @Y)#-(&'6 $'("# #,(&, $'((,&!" +1!)' ++ L&+ $'(&++ #'+ 8#, ")& 3 +2$"!- ' #8 , % '$- $'(4 - 1+ '&++ "# @&)#-(&' $" %#,& ")$" '& 5-$!& " ")& +$%& #1'"? #" ")& +$%& ,!1 "6 $'("# #,(&, $'((,&!" ")& ++ L&+ $'(&++ #'+ 1'(&, +1!)' #%% ++ #'+ 8#, ")& 3 +2$"!)' #8 , % '$- 1+ '&++ "# @&)#-(&' 8#, ")& *)#-& #1'"? $" '& 5-$!&6 $'(8#, ")& 3 +2$"!)' #8 4 - 1+ '&++ $" '& #, %#,& 5-$!& #, 5-$!&+ " +1!)' #1'"?6 #" ")& +$%& ,!1 " $'(81,")&, "# 2,(&, $'((,&!" $'? 2&! $- #%% ++ #'+ #8 ?&, $'(&,% '&, $'(H$#- 3&- 4&,? "# @&)#-(&' $" $'? '& #, %#,& 5-$!&+ " $'? +1!)' #1'"?

+ ZD/ 3 'G ^ F GD (I#3 DE . 3"D +I/^ C ED . " 7G^ #4 EE dDE # G ..D/D#3 * ^ F E #E . 3"D E2OD (I#36

' (@& " &'$!"&(')$" " !$+& + $>&+"?6 @? $'(* ")' ")& (4 !& #8 + #+" #'#1,$@-& 5, 4? #1'! -6 +)$-- ") '.' 8 " "# #,(&, $'((,&!" ")$" ")& ++ L&+ #, $'? +1!)' 2&! $- #%% ++ #'+ +)$-- @&)#-(&' $" %#,& ")$" '& 5-$!& " $'? '& #1'"?6 " +)$-- @& -$*81- 8#, + $>&+"?6 @? $'(* ")' ")& (4 !& $8#,&+$ (6 "# (4 (& $'? +1!)' #1'"? 8#, ")& 51,2#+&+ #8 ") + !"6 $'("# %$:& 1-&+ $'(&.1-$" #'+ "#1!) '. ")& <&'1& " $-- $+&+6 4 - $'(, % '$-6 ")&' 2&'('. #, ")&,&$8"&, "# @& 2&'('. $'(" '@&", &(* ") " $'? 3 4 + #" #8 +1!)' #1'"? +# "# @& %$(& $+ $8#,&+$ ($'("#1!) '. ")& $@ - "? $'(""&'($'!& #8 R1,#+,+6 *)&")&,6 H,$'(R1,#,+6 2&! $- R1,#,+6 #, #%%#" R1,#,+6 $" ")& ++ L&+ $'(&++ #'+ $+ $8#,&+$ (6 #, $" $'? &++ #'+ 1'(&, $'? 2&! $- #%% ++ #'+ "@ @&)#-(&' * ") " $'? +1!)' 3 4 + #" ' $'("#1!) '. ")& V+& #8 $'? #1+& #8 #,,&!" #" #, 5, +#" $+ $ #%%#" H$#-6 $'(")& H#4&,'AB %&'" $'(D&&2 '. ")&,&#8 ' $'("#1!) '. ")& -"&,$" #'+ #8 $'? #%% ++ #'+6 E , "+6 5,&!&2"+6 #, #")&, 5,#!&&('.+ *)$"+#&4&, 8#, !$,,? '. '"# &8-8&!" ")& 51,2#+&+ #8 ") + !" ' $'("#1!) '. $'? #")&, $""&,+ ")$" %$? @& ,&C1 + "& 8#, !$,,? '. '"# &88&!" ")& 51,2#+&+ #8 ") + !" ' $'($-- +1!)' 1-&+ $'(&.1-$" #'+ +)$-- @& #8 ")& - :& #,!& $'(88&!" $+ 8 ")& +$%&)$(@&&' %$(& @? ")& 1")#, "? #8 5$,- $%&'"6 $'(+)$-- @& '#" 8 &(" ")& ' K ' #, " +1!)' #")&, $''&, $+ + $>&+"?6 @? $'(* ")' ")& (4 !Z #8 + #+" #'#1,$@-& 5, 4? #1'! -6 +)$-- ") '.' 8 " "# (,&!"6

+ ZD/ 3 'G ^ /DH3 3"D (I/3 . (OO # +7D2E 23 2#^ H2E3D/ 3 'OD " 7GD# 23 2#6 '#D / O /D +72HDE # 3"D (I#36 2#G 3 'G F GD 3"D (I#36 . / 3"23 +I/C ED

< ' (@& " 81,")&, &'$!"&(')$" + $>&+"? +)$--)$4& 5#*&, 8,#%6 %& "# %&6 8#, ")& 51,2#+& #8 !$,,? '. ") + !" "'# &88&!"6 "# #,(&, $'((,&!" ")$" ")& #1," #8 #%%#" 5-&$+ $" +)$-- @&)#-(&' $" $'? '& #, %#,& 5-$!&+ " ")& #1'"? 5$-$" '& 7 ' $+ & +)$-- ") '.' 8 "6 $'("# (4 (& ")& +$ (#1'"? 5$-$" '& 8#, ")& 51,2#+& #8 ")& , $- #8 4 - $1+&+ $'(")& ,$'+$!" #' #8 #")&, 4 - 1+ '&++ " ")& +$ (#1,"6 $'("# %$:& ")& - :& 1-&+ $'(&.1-$" #'+ "#1!) '. ")& <&'1& " 4 - $+&+ "# @& ", &(* ") " $'? 3 4 + #" #8 ")& +$ (#1'"?6 $'(")& $@ - "? $'(""&'($'!& #8 R1,#,+6 *)&")&, 2&! $- 2, #%%#'6 $"

K ' $ B ' ' (2C Q V

")&' #1,'" "#' @&')&-(' * ") '' $'?' +1!)' 3 4 + #'6' $'(' "#1!) '.' ")&' -"&,$" #'+' #8' #%% ++ #'+6' E, "+6' 5,&!&2"+6' #,' #")&,' 5,#!&&('.+' 8#,' !$,,? '.' '"#' &88&!" ")&' 51,2#+&+' #8' ") +' !"6' $'(' "#1!) '.' $'?' #")&,' $""&,' ")$" %$?' @&' ,&C1 + "&' 8#,' !$,,? '.' '"#' &88&!" ")&' 51,N 2#+&+' #8' ") +' !"' $'(' $--' +1!)' 1-&+' $'(' &.1-$" #'+' +)$--' @&' #8' ")&' - :&' #,!&' $'(' 88&!" $+' 8' ")&' +$%&')$(' @&&'' %$(&' @?' ")&' 1")#, "?' #8' 5$,- $%&'"6' $'(' +)$--' @&' '#" 8 &(' '' ")&' ' K ' #,' '' +1!)' #")&,' $''&,' $+' +' $>&+"?' +)$--' ") ':' 8"

3] 5, '"&(' @?' > + 6?+' * 6+' $'(' ! 6+ ' & +' 5, '"&,+' "#' ")&' D '.;+' %#+" 9!&--&'" $>&+"?'

)) '' = '' 'Y = '

B '76' = 2

(+ '

#' H3' . /' H2//6 #4' #3 ' D..DH3' Z ' (#FD#3 #E' Z 3"' 3"D' ? #4' .' 3"D' 3 '. /' EICC/DEE #4' 3"D' 72FD' /2GD' [Q3"' % ' Q _

E ' $' #'4&'"#'' *$+' !#'!-1(&(' @&"*&&'' +' $>&+"?' $'(' +' $>&+"?' ")&' D '.' #8' ")&' 1 ' 8#,' ,&'(&, '.' %#,&' &88&!"1$-' ")&' &$'+' #8' +122,&++ '.' ")&' !, % '$-' ,$88 !' !$--&(' ")&' -$4&' ,$(&6' $'(' + .'&(' $"' > ' #'' ")&') ," &")' 3$?' #8' 9 *" ' '' ")&' &$,' #8' #1,' #,(' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B#'&' '(' *)&,&$+' @?' ")&' ,+"' ," !-&' #8' ")&' +$ (' #'4&'"#'' '' *$+' $.,&&(' ")$"' ")&' %1"1$-' .)"' #8' &$,!)' % .)"' @&' &9&,! +&(' #'' @#$,(' ")&' <&++&-+' #8' &$!)' $" #'6' @1"' #'-?' * ") '' ")&' E$"&,+')&,& 'B$8"&,' (&+!, @&(' '$%&-?6 ,+"6' -#'.' ")&' E&+"&,'' #$+"' #8' ' 8,#%' ' N ' "#' ")&' 3 +"$'!&' #8' &'' 3&.,&&+' "#' ")&' #1")' #8' ")&' C1$"#,6' ")$"' +' "#' +$?6' 8,#%' ")&' &'")' 3&.,&&' #8' #1")' $" "1(&' "#' ")&' 8"&&'")' 3&.,&&' #8' #,")' $" "1(&6' $'(' $+' 8$,' $+' ")&') ," &")' 3&.,&&' #8' E&+"' #'. "1(&6' ,&!:#' '.' 8,#%' ")&' &, ($'' #8' 5$, +]

&!#'(6' --' ,#1'(' ")&' +-$'(' #8' ' "#' ")&' 9"&'"' #8' *&'"?' &$.1&+' 8,#%' ")$"' +-$'(]

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Q Q' $ ' $ B ' ' (2C

) ,(6' #' ")&' +$%&' 3 +"$'!&' 8,#%' ")&' #$+"+' #8' ")&' +-$'(' #8'
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5#1,")6' #' ")&' +$%&' 3 +"$'!&' 8,# '' ")&' #$+"+' #8' ")&' +-$'(' #8'
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5 8")6' #' ")&' +$%&' 3 +"$'!&' 8,#%' ")&' #$+"+' #8' (K U
"' *$+')#*&4&,' 1'(&,+"##(6' ")$"' $' +1+2&!"&(' <&++&-6' (&N
+!,&('$'(' @&.1'' "#' @&' !)$+&(' @?' ")&' ,1 L&,+6' 4) -&' * ") ''
")&' +$ (' 2$!&' #8' *&'"?' &$.1&+6' % .)" @&' +&$,!)&(' @?'
")&%' @&?#'(' ")#+&' % "+6' 86' * ")#1" &4&,')$4 '.' -#+" + .)"
#8')&,6' ")&?' +)#1-(' #'-?' +1!!&&(' '' !#% '.' 12' * ")')&,' $"' $'
.,&$"&,' 3 +"$'!&' 8,#%' ")&' #$+"]
'(' *)&,&$+' @?' ")&' &!#'(' ," !-&' "' *$+' $.,&&(6' ")$"' ")&' .)"
#8' +&$,!) '.' &,!)$'' <&++&-+' #8' & ")&,' #8' ")&' *#' $" #'+' '' ")&'
E$"&,+')&,& 'B@&8#,&' %&'" #'&(' +)#1-(' @&' &9&,! +&(' #'-?' @?') 2+'
#8' E$,' *)#+&' #%%$'(&,+' +)#1-(')$4&' ")&' $' :' #8' $2"$ '6' #,' $"'
-&$+" ")$"' #8' &1"&'$'" '' ")&' $4?] '(' *)&,&$+' @?' ")&'),('
," !-&' "' *$+' $.,&&(6' ")$"' ")&' 1%@&,' #8') 2+' "#' @&' '4&+"&(' * ")'
")&' +$ (' .)" +)#1-(' @&' 8 9&(' &$!)' &$,' @?' $' +2&! $-' .,&&%&'"6'
")$"' ")&' 1%@&,' 8#,' &$!)' $" '' '&&(' '#" @&' ")&' +$%&6' @1" ")$" ''
'#' $+&' +)#1-(' ")&' 1%@&, #8' ")&' ,1 L&,+' #8' ")&' #'&' $" #'' @&'
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&,4$'"+ˢ #,ˢ ,&&ˢ $@#1,&,+6ˢ !#'8#,%$@-?ˢ "#ˢ ")&ˢ ,&+2&!" 4&ˢ $*+]
'(ˢ *)&,&$+ˢ @?ˢ ")&ˢ *&-8")ˢ ," !-&ˢ #8ˢ ")&ˢ +$ (ˢ 122-&%&'"$,?ˢ #'N
4&'" #'ˢ "ˢ *$+ˢ $.,&&(ˢ @&"*&&'ˢ ")&ˢ *#ˢ .)ˢ #'",$!" '.ˢ 5$,"&+6ˢ
")$"ˢ '$--ˢ $+&+ˢ 'ˢ *) !)ˢ $ˢ <&++&-ˢ 1'(&,ˢ ")&ˢ +$ (ˢ #'4&'" #'ˢ #8ˢ ")&ˢ
) ," &")ˢ 3$?ˢ #8ˢ 9 *" ˢ 'ˢ ")&ˢ &$,ˢ #8ˢ #1,ˢ #,(ˢ '&ˢ ")#1+$'(ˢ
& .)"ˢ)1'(,&(ˢ $'(ˢ ") ,"?B#'&6ˢ #,ˢ 1'(&,ˢ ")&ˢ +$ (ˢ 122-&%&'"$,?ˢ
#'4&'" #'6ˢ +)#1-(ˢ @&ˢ (&"$ '&(ˢ @?ˢ ")&,ˢ ,&+2&!" 4&ˢ ,1 L&,+ˢ $+ˢ
)$4 '.ˢ @&&'ˢ &'.$.&(ˢ 'ˢ ")&ˢ -$4&ˢ ,$(&ˢ #,ˢ 8 ""&(ˢ #1"ˢ 8#,ˢ ")&ˢ 51,N
2#+&+ˢ ")&,&#86ˢ $'(ˢ +)#1-(ˢ @&ˢ 2-$!&(ˢ $"ˢ ")&ˢ 3 +2#+$-ˢ #8ˢ &")&,ˢ
H#4&,'%&'"ˢ 8#,ˢ ")&ˢ 51,2#+&ˢ #8ˢ @& '.ˢ +#-(ˢ 'ˢ !#'+&C1&'!&ˢ #8ˢ $ˢ
&'"&'!&ˢ #8ˢ #'8 +!$" #'ˢ 2,#'#1'!&(ˢ @?ˢ $ˢ !#%2&"&'ˢ , @1'$-6ˢ ")&ˢ

+$ (ʼ <&++&-ʼ +)#1-(ʼ @&ʼ @,#:&'ʼ 12ʼ ʼ *)#-&ʼ #,ʼ 'ʼ 2$,"ʼ @&8#,&ʼ ")&ʼ
$-&ʼ *)&'&4&,ʼ "+ʼ 2&!1-$,ʼ #'+",1!"#"#,ʼ 1"8 ʼ+)#1-(ʼ. 4&ʼ ,&$+#'ʼ
"#ʼ 8&$,ʼ ")$"ʼ "ʼ % .)"ʼ @&ʼ $.$ 'ʼ&'">>-#?&(ʼ 'ʼ ")&ʼ -$4&ʼ ,$(&ʼ #,ʼ $'?ʼ
#")&,ʼ -- ! "ʼ ,$88 !ʼ] '(ʼ *)&,&$+ʼ @?ʼ ")&ʼ) ,"&&'")ʼ $'(ʼ -$+"ʼ ," !-&ʼ
#8ʼ ")&ʼ +$ (ʼ 122-&%&'"$,?ʼ #'4&'"#'ʼ "ʼ *$+ʼ $.,&&(ʼ ")$"ʼ ")&ʼ +$ (ʼ
2,&+&'"ʼ #'4&'"#'ʼ +)#1-(ʼ @&ʼ ,$"8 &(ʼ $'(ʼ ")&ʼ $"8 !$"#'+ʼ +)#1-(ʼ
@&ʼ &9!)$'.&(ʼ $"ʼ >I ʼ * ") 'ʼ ")&ʼ 2$!&ʼ #8ʼ '&ʼ #'")ʼ #,ʼ +##'&,ʼ 8ʼ
2#++ @-&] '(ʼ *)&,&$+ʼ ")&ʼ +$ (ʼ 122-&%&'"$,?ʼ #'4&'"#'ʼ *$+ʼ
,$"8 &(ʼ @?ʼ $'(ʼ @&"*&&'ʼ +ʼ $>&+"?ʼ $'(ʼ +ʼ $>&+"?ʼ ")&ʼ
D '.ʼ #8ʼ ")&ʼ 1 ʼ ,&+2&!"4&-?ʼ $'(ʼ +1!)ʼ $"8 !$"#'+ʼ *&,&ʼ &9N
!)$'.&(ʼ #"ʼ ")&ʼ *&-8")ʼ 3$?ʼ #8ʼ: ʼ 'ʼ ")&ʼ &$,ʼ #8ʼ #1,ʼ #,(ʼ '&ʼ
")#1+$'(ʼ &.)"ʼ)1'(,&(ʼ $'(ʼ") ,"?B"),&&ʼ '(ʼ *)&,&$+ʼ "ʼ +ʼ &>72&Bʼ
(&'"ʼ $'(ʼ '&!&++$,?ʼ ")$"ʼ &8 &&"1$-ʼ 5,#4 + #'ʼ +)#1-(ʼ @&ʼ %$(&ʼ 68#,ʼ
!$,,? '.ʼ '"#ʼ &9&!1"#'ʼ ")&ʼ 5,#4 + #'+ʼ #8ʼ ")&ʼ #'4&'"#'ʼ $8#,&+$ (]
&ʼ "ʼ ")&,&8#,&ʼ &'$!"&(ʼ @?ʼ ")&ʼ D '.;+ʼ %#+"ʼ 9!&--&'"ʼ $>&+"?Aʼ @?ʼ
$'(ʼ *")ʼ ")&ʼ (4 !&ʼ $'(ʼ #'+&'"ʼ #8ʼ ")&ʼ #,(+ʼ 2 , "1$-ʼ $'(ʼ &%N
2#,$-6ʼ $'(ʼ #%%#'+6ʼ 'ʼ ") +ʼ 2,&+&'"ʼ 5$,- $%&'"ʼ $++&%@-&(ʼ $""(ʼ @?ʼ
")&ʼ 1")#, "?ʼ #8ʼ ")&ʼ +$%&ʼ)$"ʼ "ʼ +)$--ʼ @&ʼ -$*81-ʼ 8#,ʼ $'?ʼ 88 !&,ʼ
!#%%$'(ʼ '.6ʼ $'?ʼ)2ʼ #8ʼ E$,ʼ #8ʼ +ʼ $>&+"?ʼ #,ʼ #8ʼ ")&ʼ D '.ʼ #8ʼ ")&ʼ
1 ʼ *)#ʼ +)$--ʼ)$4&ʼ +1!)ʼ $':ʼ $+ʼ @?ʼ ")&ʼ +$ (ʼ &!#'(ʼ ," !-&ʼ
#8ʼ ")&ʼ +$ (ʼ 8 ,+"B%&'"#'&(ʼ #'4&'"#'ʼ +ʼ $.,&&(ʼ $'(ʼ +)$--ʼ @&ʼ (1-?ʼ
'+",1!"&(ʼ $'(ʼ $1")#, L&(ʼ $'(ʼ 81,'+)&(ʼ $!!#,(ʼ '.ʼ "#ʼ ")&ʼ +&4&,$-ʼ
5,#4 + #'+ʼ #8ʼ ")&ʼ +$ (ʼ *#ʼ #'4&'"#'+6ʼ $'(ʼ *") 'ʼ ")&ʼ E$"&,+ʼ
(&+!, @&(ʼ $'(ʼ $!!#,('.ʼ "#ʼ ")&ʼ 5,#4 + #'+ʼ $'(ʼ 9!&2"#'+ʼ !#'"$ '&(ʼ
'ʼ ")&ʼ ,+"ʼ ," !-&ʼ #8ʼ ")&ʼ +$ (ʼ 8 ,+"B%&'"#'&(ʼ #'4&'"#'6ʼ "#ʼ 9&,N
!+&ʼ ")&ʼ .)"ʼ #8ʼ 4 + "'.ʼ $'(ʼ +&$,!)'.ʼ $'?ʼ &,!)$'"ʼ <&++&-ʼ !8ʼ
&")&,ʼ #8ʼ ")&ʼ +$ (ʼ *#ʼ $"#'+ʼ - $@-&ʼ "#ʼ 1+2 ! #'6ʼ $'(ʼ +1+2&!"&(ʼ #8ʼ
)$4 '.ʼ&'.$.&(ʼ 'ʼ#,ʼ#8ʼ)$4 '.ʼ @&&'ʼ &%2-#?&(ʼ 'ʼ ")&ʼ -$4&ʼ ,$(&6ʼ #,ʼ
#8ʼ)$4 '.ʼ @&&'ʼ 8 ""&(ʼ #1"ʼ 8#,ʼ ")&ʼ 51,2#+&+ʼ #8ʼ +1!)ʼ ,$88 !6ʼ $!!#,('.ʼ
"#ʼ ")&ʼ +&4&,$-ʼ 5,#4 + #'+ʼ $'(ʼ '+",1!"#'+ʼ #8ʼ ")&ʼ +$ (ʼ *#ʼ #'4&'N
"#'+6ʼ &9!&2"ʼ $+ʼ 'ʼ ")&ʼ +$ (ʼ) ,(ʼ ," !-&ʼ #8ʼ ")&ʼ +$ (ʼ 122-&%&'"$,?ʼ
#'4&'"#'ʼ +ʼ &9!&2"&(6ʼ $'(ʼ 12#'+188 !&'"ʼ H,#1'(+6ʼ #8ʼ (&"$ ' .]ʼ
$'(ʼ #8ʼ +&'('.ʼ #,ʼ !$,,? '.ʼ 'ʼ $'(ʼ (&-4&, '.ʼ #4&,ʼ *")#1"ʼ 3&-$?ʼ
$'?ʼ +1!)ʼ <&++&-6ʼ "#.&")&,ʼ *")ʼ "+ʼ $+"&,6ʼ $-#,+6ʼ 5$++&'.&,+6ʼ
-$4&+6ʼ $'(ʼ $,.#6ʼ "#ʼ ")&ʼ 1")#, "&+ʼ $22#'"&(ʼ 8#,ʼ ")&ʼ 51,2#+&+ʼ #8ʼ
")&ʼ +$ (ʼ *#ʼ #'4&'"#'+6ʼ @?ʼ ")&ʼ ,&+2&!"4&ʼ H#4&,'%&'"+ʼ #8ʼ ")&ʼ
+$ (ʼ *#ʼ $"#'+6ʼ $'(ʼ"#ʼ#'&ʼ#8ʼ ")&ʼ R1, +(!"#'+ʼ 'ʼ ")&ʼ +$ (ʼ '+",1!N
"#'+ʼ %&'"#'&(6ʼ 'ʼ #,(&,ʼ ")$"ʼ 5,#!&&('.+ʼ %$?ʼ @&ʼ '+"1"&(ʼ !#'N
8#,%$@-?ʼ "#ʼ ")&ʼ ,&+2&!"4&ʼ $*+ʼ #8ʼ ")&ʼ +$ (ʼ *#ʼ #1'",&+ʼ ʼ $'(ʼ $--ʼ
+1!)ʼ #%%$'(,&+ʼ #8ʼ +ʼ +$ (ʼ $>&+"?;+ʼ)2+ʼ $,&ʼ)&,&@?ʼ $1")#, L&(ʼ
$'(ʼ ,&C1 ,&(ʼ 'ʼ ")&ʼ 9&,! +&ʼ #8ʼ +1!)ʼ .)"+ʼ #8ʼ 4 + "'.6ʼ +&$,!) '.6ʼ
(&"$ ' '.6ʼ +&'('.6ʼ !$,,? '.ʼ '6ʼ $'(ʼ (&- 4&, '.ʼ $+ʼ $8#,&+$ (6ʼ "#ʼ &9&!1"&6ʼ
2&,8#,%6ʼ $'(ʼ !#%2-?ʼ *")ʼ ")&ʼ +$ (ʼ +&4&,$-ʼ 5,#4 + #'+ʼ $'(ʼ '+",1!N
"#'+ʼ #8ʼ ")&ʼ +$ (ʼ *#ʼ #'4&'"#'+ʼ $+ʼ $22-?ʼ ")&,&"#ʼ ,&+2&!"4&-?

'(ʼ @&ʼ "81,")&,ʼ &'$!"&(6ʼ)$"ʼ *)&,&ʼ $'?ʼ +1!)ʼ 88 !&,ʼ #8ʼ +ʼ
$>&+"?ʼ ")&ʼ D '.ʼ #8ʼ ")&ʼ 1 ʼ +)$--ʼ +&'(ʼ !$,,?6ʼ #,ʼ (&- 4&,ʼ #4&,ʼ $+ʼ
$8#,&+$ (ʼ $'?ʼ +1!)ʼ &,!)$'"ʼ <&++&-6ʼ *)#--?ʼ #,ʼ @ʼ 2$,"ʼ #*'&(ʼ @?ʼ $'?ʼ
1@>&!"ʼ #,ʼ 1@>&!"+ʼ #8ʼ +ʼ $>&+"?ʼ ")&ʼ D '.ʼ #8ʼ ")&ʼ V'"&(ʼ D '.(#%ʼ
#8ʼ (ʼ $'(ʼ $-ʼ $'(ʼ &4&,?ʼ 5,#!&&('.ʼ '+"1"&(ʼ '
")&ʼ , @1'$-+ʼ)&,&ʼ 'B$8"&,ʼ %&'"#'&(ʼ 8ʼ ,&.$,('.ʼ "#ʼ +1!)ʼ &,!)$'"ʼ
<&++&-6ʼ $'(ʼ "+ʼ ,&*ʼ $,.#6ʼ $'(ʼ -$4&+6ʼ $'(ʼ ",&+2&!"'ʼ "#ʼ ")&ʼ $1+&6

(0 02#GD/Eʼ .ʼ "CEʼ .ʼ @2/ʼ3 ʼD&D/^ H EDʼ = 4"3ʼ .ʼ ED2/H" #4ʼ BD/H"2#3ʼ DEED7Eʼ 7 2O7Dʼ 3 ʼ IEC H #ʼ 2#GʼE I ECDH3DGʼ .ʼOD #4ʼ D#^ 424DGʼ #ʼ3"Dʼ 72FDʼ /2GD

#ʼ H2EDʼ .ʼ A/D#H"ʼ '.. ʼ HD/EGD32 # #4ʼ / 3 E"ʼ DE^ ED7Eʼ+/ HDDG^ #4Eʼ 3 ʼ ODʼ H #G I H3DGʼ #)2 0Dʼ .ʼ > Eʼ B 25DE36

$ B ' ' (2C ' @

+)$-- @& !#'(1!"&(' '' ")& $%& #8 + +$ (' $>&+"? ")& D ' .' #8 ")&
V' "&(' D ' . (#% #8 ' (' $'(' '@? +#%& 5&,+#'' (1-?
")&,&1' '"# $1")#, L&(' ' ")$" + "# +$?6 $--) 2+6 $, .#&+6 $'(' -$4&+
*) !)' +)$-- @& (&"$ '&(' @? ")& ,1 L&,+ #8 + $>&+"? ")& D ' .' #8
")& 1 ' $'(' (&- 4&,&(' 12 "# ")& R1, +(!" #'' #8 + $>&+"? $"
('#'' ")& 4&,' * " ' +)$-- @& 2,#!&&(&(' $.$ '+" $'(' $(>1N
(!$"&(' '' ")& < !& (% ,$-"? #1," $" - $'(' ")$" $--
#")&,') 2+6 $, .#&+6 $'(' -$4&+ *) !)' %$? "- :& $' '&,' @& (&"$ '&('
@? ")& ,1 L&,+ #8 + $>&+"? ")& D ' .' #8 ")& 1 ' $'(' (&- 4&,&('
12 "# ")& R1, +(!" #'' #8 + $>&+"? & ")&,' $" & * ' ' '
') '#,' ' * ' +)$-- @& 2,#!&&(&(' $.$ '+" $'(' $(>1(!$"&('
'' ")& < !& (% ,$-"? #1," &+"$@- +)&(' '' ")& +$ (' #-#' &+ ,&+2&!N
" 4&-? ' $'(' ")& R1(.&+ $'(' #")&,' 88 !&,+ #8 ")& +$ (' < !& (% ,$-"?
#1,"+ ,&+2&!" 4&-? $,&)&,&@? $1")#, L&(' "# "$:& !#. ' L$'!& ")&,&#8
$!!#,(' .-?

' ' (' @& " 81,")&,' &'$!"&(' $'(' (&!-$,&(6)$" $'? +1!)' &,B DEED7E GD '
!)$'" <&++&-6 *)#--? #,' '' 2$," #*'&(' $+ -$+" $8#,&+$ (664 + "&(' $'(' 32 #DG # 21,B
(&"$ '&(' '' 21,+1$'!& #8 ")& +$ (' *# #'4&'" #'+6 +)$--6 1'-&++ 5,##8 7#'4&'7
@& . 4&'' "# ")& !#'",$,?6 @&)&-('$'(' "$:&'' "#)$4& &'.$.&(' '' ")& 6&
-$4& ,$(&6 #,' "#)$4& @&&'' 8 ""&(' #1" 8#,' ")& 51,2#+&+ #8 +1!)' "D7G 2E D# '
,$88 !6 $'(' &C1 22&('$'(' &%2-#?&(' '' ")& @>&!"+ (&!-$,&(' 1'-$*81- 424DG # 3"D
@? $'' !" #8 5$,- $%&'" 2$++&(' '' ")& 8")' &$,' #8 ")& & . '' #8 + ",$(&'
$>&+"? D ' . ' ")& #1,")6 ' ""1-&(' ' ' ' * ' ' 2 V ' H 77 '
' ' $ ' ' ' ' " ' ' ' ' 5 ' 8 $'? #8
")& 5$," !1-$,+ +2&! 8 &(' '' ")& +$ (' 9")' ," !-& #8 ")& +$ (' #'N
4&'" #'' #8 ")& *&'"?B+&!#'(' 3$? #8 ' '& ")#1+$'(' & .)"
)1'(,&('$'('") ,"?B"),&& +)$-- @& 8#1'(' '')&,' 1"8 " #,' C1 2%&'"6
#,' #'' @#$,(' #8)&,

< ' ' (' @& " 81,")&,' &'$!"&(' ')$" '' !$+& $'? +1!)' &,!)$'," 3 "D/D 2 / ^
<&++&-6 *)#--? #,' '' 2$," #*'&(' $+ -$+" $8#,&+$ (6 +)$-- @& @,#1.)" '' 3 E"' DEED7 E
@? $'? 88 !&,' #8 + $>&+"? ")& D ' . ')' '1 ' (1-? $1")#, L&(6 H #. EH23DG
$'(' +)$-- @& !#'8 +!$"&(' $!!#,(' .' "# ")& $*+ #8 ") + #1'",? $'(' O6 2 A/D#H"'
")& 5,#4 + #'+ #8 ")& +$ (' *# #'4&'" #'+6 $'(' #8 ")& +$ (' !" #8 ' .. HD/! + / ^
5$,- $%&'" 2$++&(' '' ")& 8")' &$,' #8 ")& & . '' #8 + $>&+"? HDDGE O26 OD
D ' . ' ")& #1,")6 " +)$-- @& -$*81- 8#,' + $>&+"? ")& D ' . ' 2CC /3 #DG
#8 ")& V' "&(' D ' . (#% #8 ' (' $'(' ' "# (,&!" ")$" 2HH /G #4 3 '
$ 5#," #'' #8 ")& 5,#!&&(+ $, + ' .' 8,#%6 ")& $-& ")&,&#8 +)$-- @& 2$ (' A .3"' /3 H7D
'"# ")& $'(+ #8 ")& H#4&,'%&'" #8 + $>&+"? ")& D ' .' #8 ")& .' (#FD#^
1 ' $!!#,(' .' "# ")& 5,#4 + #'+ #8 ")& 8")' ," !-& #8 ")& +$ (' 3 #
#'4&'" #'' #8 ")& *&'"?B+&!#'(' 3 $? #8 ' '& ")#1+$'(' & .)"
)1'(,&('$'('") ,"?B"),&& $'(' ")$" $'? 5#," #'' #8 ")& 5,#!&&(+
$, + ' .' 8,#% ")& $-& #8 $'?) 2 $. ,&&(' "# @& 2$ (' '"# ")& $'(+
#8 ")& H#4&,'%&'" #8 + $>&+"? ")& D ' .' #8 ")& V' "&(' D ' . (#%
#8 ' (' $'(' F,&F$* (6 $!!#,(' .' "# ")& 5,#4 + #'+ #8 ")& +$ ('
8")' ," !-& -$+" $8#,&+$ (6 #,' $, .#6 +)$-- @& 2$ ('"# +1!)' 5&,+#'' #,'
5&,+#'+ $+ ")& #%% ++ #'&,+ #8 + $>&+"?;+ ,&$+1,? %$? (,&!"
#,' $22# '" "# ,&!& 4& ")& +$%&6 "# $'(' 8#,' ")& V+& #8 ")& $2"#,+6
$!!#,(' .' "# ")& 5,#4 + #'+ #8 ")& +$ (' 8")' ," !-& $'(' ")$" ")&
+$%&6 $8"&,' (&(1!" ' .' $-- '&!&++$,? 92&'!&+6 +)$-- @& (+", @1"&('"#
$'(' $%#' .+" ")& 88 !&,+ $'(' ,&*' #8 ")& !$2"1, ' . ') 2 '' ")&
$''&,

U8 ; L B ʿ ʿ (2C

$''&,ʿ)&,&$8"&,ʿ (,&!"&(ʿ 8#,ʿ ")&ʿ 3 +", @1" #'ʿ #8ʿ #1'" &+ʿ #'ʿ
-$4&+ʿ "$:&'ʿ #'ʿ @#$,(ʿ ")&ʿ +$ (ʿ <&++&-

ʿ I#36ʿ .ʿ
ʿ. /ʿDFD/6ʿ
72FDʿ. I#Gʿ
#O 2/Gʿ .ʿ
DEED7Eʿ
ED dDGʿ 2#Gʿ
H #GDO#DG

<ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(6ʿ)$"ʿ ")&,&ʿ +)$--ʿ @&ʿ 2$ (ʿ #1"ʿ #8ʿ ")&ʿ
#'+#- ($"&(ʿ 1'(ʿ #8ʿ ")&ʿ V' "&(ʿ D '.(#%ʿ #8ʿ ʿ(ʿ $'(ʿ
ʿ"#ʿ ")&ʿ #%%$'(&,+6ʿ 88 !&,+6ʿ $'(ʿ ,&*+ʿ #8ʿ +ʿ $>&+"?;+ʿ
) 2+ʿ $1")#, L&(ʿ "#ʿ %$:&ʿ & L1,&+ʿ 1'(&,ʿ ")&ʿ $8#,&+$ (ʿ #'4&'" #'ʿ
#8ʿ ")&ʿ *&'"?B+&!#'(ʿ ʿ '&ʿ ")#1+$'(ʿ & .)"ʿ)1'(,&(ʿ $'(ʿ
") ,"?B"),&&6ʿ $ʿ #1'"?ʿ #8ʿ 4&ʿ 5#1'(+ʿ #8ʿ-$*81-ʿ #'&?ʿ #8ʿ ʿ
(ʿ8#,ʿ &4&,?ʿ $'6ʿ E#%$'6ʿ $'(ʿ) -(ʿ -$4&ʿ +& L&(ʿ $'(ʿ 8#1'(ʿ
#'ʿ @#$,(ʿ $ʿ (ʿ #,ʿ 1 ʿ) 2ʿ #,ʿ <&++&- "$:&'6ʿ (&- 4&,&(ʿ #4&,6ʿ
$'(ʿ !#'(&%'&(ʿ 'ʿ 21,+1$'!&ʿ #8ʿ ")&ʿ 5,#4 + #'+ʿ #8ʿ ")&ʿ +$ (ʿ #'N
4&'" #'+ʿ $'(ʿ #8ʿ ") +ʿ !"6ʿ +1!)ʿ #1'"?ʿ "#ʿ @&ʿ ++1&(ʿ $'(ʿ 2$ (ʿ @?ʿ
,(&,ʿ 8,#%ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ #8ʿ +ʿ $>&+"?;+ʿ ,&$+1,?6ʿ $'(ʿ
"#ʿ @&ʿ (+", @1"&(ʿ "#ʿ $'(ʿ $%#'.+"ʿ ")&ʿ $2"#,+ʿ $8#,&+$ (ʿ 'ʿ +1!)ʿ
$''&,ʿ $'(ʿ 5,#2#," #'+ʿ $+ʿ +ʿ $>&+"?6ʿ +ʿ & ,+ʿ $'(ʿ 1!!&++#,+6ʿ
+)$--ʿ ") ':ʿ 8 "ʿ "#ʿ #,(&,ʿ $'(ʿ (,&!"ʿ @?ʿ $'?ʿ ,(&,ʿ #,ʿ ,(&,+ʿ 'ʿ
#1'! -6ʿ #,ʿ @?ʿ $'?ʿ 5,#!-$%$" #'ʿ #,ʿ 5,#!-$%$" #'+ʿ "#ʿ @&ʿ %$(&ʿ 8#,ʿ
")$"ʿ 51,2#+&

O32 # #ʿ
EIH"ʿ I#36 ʿ

57#4 &(ʿ $-*$?+6ʿ $'(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"6ʿ 'ʿ #,(&,
&'" "-&ʿ ")&ʿ $2"#,+ʿ "#ʿ ,&!& 4&ʿ ")&ʿ +$ (ʿ #1'"?ʿ #'&?6ʿ ")&ʿ 1%N
@&,+ʿ #8ʿ &'6ʿ E#%&'6ʿ $'(ʿ) -(,&'ʿ +#ʿ "$:&'6ʿ (&- 4&,&(ʿ #4&,6ʿ $'(ʿ
!#'(&%'&(ʿ +)$--ʿ @&ʿ 2,#4&(ʿ "#ʿ ")&ʿ #%% ++ #'&,+ʿ #8ʿ +ʿ $>&+"?;+ʿ
,&$+1,?ʿ @?ʿ 2,#(1! '.ʿ $ʿ #2?6ʿ (1-?ʿ !&," 8 &(6ʿ #8ʿ ")&ʿ &'"&'!&ʿ #,ʿ
3&!,&&ʿ #8ʿ #'(&%'$" #'6ʿ $'(ʿ $-+#ʿ $ʿ &," 8 !$"&ʿ 1'(&,ʿ ")&ʿ $'(ʿ #8ʿ
")&ʿ 2,#2&,ʿ 8- !&,ʿ #,ʿ 88 !&,+6ʿ - "$,?ʿ #,ʿ 4 -6ʿ *)#ʿ %$?ʿ @&ʿ $22#ʿ '"&(ʿ
"#ʿ ,&!& 4&ʿ +1!)ʿ -$4&+6

@"D/Dʿ 72FDEʿ
32]D#ʿ E"27ʿ
3ʿ"2FDʿODD#ʿ
H #GDO#DG!ʿ
/ʿE"27ʿ # 3ʿ
"2FDʿ ODD#ʿ
GD7 FD/DGʿ
FD/!ʿ3"Dʿ
/D2EI/6ʿO26ʿ
277 Zʿ '#Dʿ
B D36ʿ .ʿ
3"Dʿ I#36

< ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ *)&,&ʿ $'?ʿ -$4&+6ʿ #,ʿ 5&,N
+#'+ʿ ",&$"&(6ʿ (&$-"ʿ * ")6ʿ !$,, &(6ʿ :&2"6ʿ #,ʿ (&"$ '&(ʿ $+ʿ -$4&+6ʿ +)$--ʿ
@&ʿ "$:&'ʿ #,ʿ +& L&(ʿ #'ʿ @#$,(ʿ $'?ʿ (ʿ #,ʿ 1 ʿ) 2ʿ #,ʿ <&++&-ʿ
'ʿ 21,+1$'!&ʿ #8ʿ ")&ʿ 5,#4 + #'+ʿ #8ʿ ")&ʿ +$ (ʿ #'4&'" #'+ʿ $'(ʿ #8ʿ ") +ʿ
!"6ʿ @1"ʿ *)#ʿ +)$--ʿ '#"ʿ)$4&ʿ @&&'ʿ !#'(&%'&(ʿ #,ʿ +)$--ʿ '#"ʿ)$4&ʿ
@&&'ʿ (&- 4&,&(ʿ #4&,ʿ 'ʿ !#'+&C1&'!&ʿ #8ʿ 3&$")6ʿ !:'&++6ʿ #,ʿ #")&,ʿ
'&4 "$@-&ʿ ,!1%+"$'!&6ʿ "ʿ +)$--ʿ $'(ʿ %$?ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ
#%% ++ #'&,+ʿ #8ʿ +ʿ $>&+"?;+ʿ ,&$+1,?6ʿ 8ʿ "#ʿ ")&ʿ 3 +!,&" #'ʿ "ʿ
+)$--ʿ +&&%6ʿ %&&"6ʿ @?ʿ E$,,$'"ʿ + .'&(ʿ @?ʿ $'?ʿ),&&ʿ #,ʿ %#,&ʿ #8ʿ ")&%6ʿ
"#ʿ (,&!"ʿ ")&ʿ 5$?%&'"ʿ #1"ʿ #8ʿ ")&ʿ #'+#- ($"&(ʿ 1'(ʿ #8ʿ ")&ʿ V' "&(ʿ
D '.(#%ʿ #8ʿ ʿ(ʿ $'(ʿ ʿ#8ʿ '&ʿ # &"?ʿ #8ʿ ")&ʿ #1'"?ʿ
*) !)ʿ *#1-(ʿ)$4&ʿ @&&'ʿ (1&ʿ 'ʿ &$!)ʿ $+&ʿ ,&+2&!" 4&-?ʿ 8ʿ ")&ʿ +$ (ʿ
-$4&+ʿ)$(ʿ @&&'ʿ (&- 4&,&(ʿ #4&,ʿ $'(ʿ !#'(&%'&(

+2/3 DEH72 O ʿ
7I4ʿ D#D.3ʿ
I#GD/ʿ3" Eʿ
H3ʿ O26ʿ /D^
E /3ʿ3 ʿ3"Dʿ
(I/3ʿ .ʿ
GO /2736

< ʿ 5,#4 (&(ʿ $-+#6ʿ $'(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ $'?ʿ 5$,"?ʿ #,ʿ
5$," &+ʿ !-$% '.ʿ $'?ʿ &'&8 "ʿ @?ʿ *$?ʿ #8ʿ #1'"?ʿ 1'(&,ʿ ")&ʿ 5,#4 + #'+ʿ
#8ʿ ") +ʿ !"6ʿ #,ʿ #8ʿ $'?ʿ)$,&ʿ #8ʿ ")&ʿ 5,#!&&(+ʿ #8ʿ $'?ʿ 1 ʿ <&++&-ʿ
!#'8 +!$"&(ʿ 'ʿ 21,+1$'!&ʿ #8ʿ ")&ʿ 5,#4 + #'+ʿ #8ʿ ")&ʿ $8#,&+$ (ʿ #'4&'N
" #'+6ʿ +)$--ʿ $'(ʿ %$?ʿ ,&+#,"ʿ "#ʿ ")&ʿ .)ʿ #1,"ʿ #8ʿ (% ,$-"?ʿ 8#,ʿ ")&ʿ
51,2#+&ʿ #8ʿ #@"$ ' '.ʿ ")&ʿ R1(.%&'"ʿ #8ʿ ")&ʿ +$ (ʿ #1,"ʿ ")$"ʿ &)$-8ʿ>
$'(ʿ ")$"ʿ "ʿ +)$--ʿ $'(ʿ %$?ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ R1(.&ʿ #8ʿ ")&ʿ +$ (ʿ .)ʿ
#1,"ʿ #8ʿ (% ,$-"?ʿ "#ʿ (&"&,% '&ʿ ")&,&#'6ʿ $'(ʿ $-+#ʿ "#ʿ)&$,ʿ $'(ʿ
(&"&,% '&ʿ $'?ʿ T1&+" #'ʿ #8ʿ>#ʿ '"ʿ $2"1,&ʿ *) !)ʿ %$?ʿ $, +&ʿ 12#'ʿ $'?
& L1,&

& L1,& %$(& ' 21,+1$'!& #8 ") + !"6 $'(&'8#,!& $'? 3&!,&&+ #,
&'"&'!&+ #8 ")& +$ (< !& (% ,$-"? #1,"+ ,&-$" '. "# $'? +1!)
& L1,&

'(@& " 81,")&, &'$!"&( )$" $-- ")& 5,#4 + #'+6 1-&+6 &.1-$" #'+6 #,8& "1,&+6 $'(5&'$-" &+ ,&+2&!" '. ")& 3&- 4&,? @? 5, L& .&'"+ #8 !!#1'"+ 8#, 9$% '$" #'6 $'(")& 3 +", @1" #' #8 5, L& #'&?6 $'(")& $!!#1'" '. 8#, $'(2$? '. #4&, ")& 5,#!&&(+ #8 5, L& $'(")& 5&,B!&'"$.& (1& ")&,&#' "# $ #+2 "$-6 +)$-- @& $'($,&)&,&@? &9"&'(&("# $-- #1'" &+ $'(5,#!&&(+ "# @& (+N ", @1"&(1'(&, ")& 5,#4 + #'+ #8 ") + !" "# ")& 88 !&,+ $'(,&*+ #8 $'? #8 + $>&+"?;+) 2+ #, <&++&-+ #8 E$,

D41723 #E 3 Z" H" +/ dD 4D#3E 2/D 7 2O7D D&3D#GDG 3 I#3 DE! H 3 I#GD/ 3" E H3

'(@& " 81,")&, &'$!"&(6)$" *)&,& $'? --&.$- < + " $'(3&"&'"#'6 #, $'? < + " $'(3&"&'"#' * ")#1" +188 ! &'" $1+& #8 1+2 ! #'6 #, $'? @1+& #, <&9$" #'6 +)$--)$4& "$:&' 2-$!& $'( )$4& @&&' %$(& @? $'? 88 !&, #8 + 7 $>&+"? ")& D '. #8 ")& V' "&(D '.(#% #8 ($'($+ + %&'"#'&(")& .)") $'('") ," !-&+ #8 ")& +$ (#'4&'"#' #8 ")& *&'"?B+&!#'(3$? #8 '& ")#1+$'(& .)")1'(,&($'(") ,"?B"),&&6 " +)$-- @& -$*81- 8#, ")& #,(+ #%% ++ #'&,+ #8 + $>&+"?;+ ,&$+1,?6 @? E$,,$'"+ .'&(@? $'?),&& #, %#,& #8 ")&%6 "# (,&!" 5$?%&'" "# @& %$(& #1" #8 ")& #'+#- ($"&(1'(#8 ")& V' "&(D '.(#% #8 ($'(#8 $'? #+"+ $'(3$%$.&+ *) !) %$? @& (1-? $*$,(&($!!#,('. "# ")& 5,#4 + #'+ #8 ")& +$ (*# -$+"B%&'"#'&(," !-&+] 5,#4 (&($-*$?+6 ")$" '#") '.)&,& !#'"$ '&(+)$-- &9&%2" +1!) 88 !&, 8,#%) + $@ - "? "# %$:& .##(")& 5$?%&'"+ +# %$(& *)&' -$*81--? !$--&(12#' @? ,(&, #8 ")& +$ (#, (+ #%% ++ #'&,+ #8 + $>&+"e;+ ,&$+1,?

@"D/D 77D427 *D3D#3 # .S,? %$? 2Z2/G (O CD#E23 #

'(@& " 81,")&, &'$!"&( )$" *)&' $'? & L1,& +)$-- @& %$(& @? $'? #8 ")& #%%$'(&,+6 88 !&,+6 $'(,&*+ #8 + $>&+"?;+) 2+ $1")#, L&("# %$:& & L1,&+ 1'(&, ")& $8#,&+$ (#'4&'"#' #8 ")& *&'"?B+&!#'('& ")#1+$'(& .)")1'N (,&($'(") ,"?B"),&&6 $'(R1(.%&'" +)$-- @& . 4&' $.$ '+" ")& & L#,6 #, +1!) & L1,& +)$-- @& ,&- 'C1 +)&(@?) %6 " +)$-- @& -$*81- 8#, ")& +$ (#,(+ #%% ++ #'&,+ #8 + $>&+"?;+ ,&$+1,?6 8 "# ")& 3 +!,&" #' " +)$-- +&&%6 %&&"6 @? E$,,$'" + .'&(@? $'?),&& #, %#,& #8 ")&%6 "# (,&!" 5$?%&'" "# @& %$(& #1" #8 ")& #'+#N -($"&(1'(#8 ")& V' "&(D '.(#% #8 ($'(#8 +1!) #+"+ $'(92&'!&+ $+ ")& +$ (& L#, %$?)$4& '!1,,&(,&+2&!" #8 +1!) & L1,&6 #, $'? 2,#2#," #'$"& 5$,")&,&#8

@"D/D ,IG4^ OD#3 E"277 OD 4 FD# 242 #E3 3"D Dd /! / 3"D DdI/D E"277 OD /D^ 7 #\I E"DG! 3"D /D2EI/6 O26 G /DH3 +26OD#3 . 3"D Dd +E (E3E!

'(@& " 81,")&, &'$!"&( )$" 8 $'? !"#' #, 1 " +)$-- @& !#%%&'!&(6 & ")&, (#, &-+&*)&,&6 $.$ '+" $'? 5&,+#' #, 5&,+#'+ 8#, $'? ") '. '. (#'& #, 21,+1$'!& #8 ")& +$ (#'N 4&'"#'+6 #, ")& '+",1!" #'+ #, &.1-$" #'+ ")&,&"# $''&9&(6 #, #8 ") + !" #, #8 $'? 8#, $'? ,&-$" '. ")&,&"#6 ")& 3&&&'($'" #, 3&&&'($'" +1!) !" #, 1 " %$? 2-&$(")& H&'&,$- +1& $'(. 4& ")& +2&! $- $""&,('. &'" $'? ")& ")&,&)$(#' &4 (&'!& 12#' $'? ")& ")$" ")& $! ,&"# *$+ (#'& '. 21,+1$'!& $'(@? $1")#, "? #8 ")& +$ (#'4&'"#'+ #, &.1-$" #'+ #, #8 ") + !" #, ")& +$ (
$'(

#277 H3 #E H OOD#HDG I#GD/ 3" E H3! *D.D#^ G2#3 O26 C7D2G 3"D D#D/27 EEID

Ů ˢ ˢ Lˢ Bˢ ˢ (2C

$'(ˢ 8ˢ '"ˢ +)$--ˢ $22&$,ˢ +#ˢ "#ˢ)$4&ˢ @&&'ˢ (#'&6ˢ ")&ˢ R1,?ˢ +)$--ˢ 8 '(ˢ 8#,ˢ ")&ˢ
3&8&'($'"ˢ #,ˢ 3&8&'($'"+ˢ $'(ˢ 8ˢ ")&ˢ 5-$ '" 88ˢ +)$--ˢ @&ˢ '#'+1 "&(6ˢ #,ˢ
(+!#'" '1&ˢ) +ˢ !" #'ˢ $8"&,ˢ ")&ˢ 3&8&'($'"ˢ #,ˢ 5&8&'($'"+ˢ +)$--ˢ)$4&ˢ
$22&$,&(6ˢ #,ˢ 8ˢ R1(.%&'"ˢ +)$--ˢ @&ˢ . 4&'ˢ 12#'ˢ $'?ˢ <&,(!"ˢ #,ˢ 3&N
%1,,&,ˢ $.$ '+"ˢ ")&ˢ 5-$ '" 886ˢ ")&ˢ 3&8&'($'"ˢ #,ˢ 3&8&'($'"+ˢ +)$--ˢ
,&!#4&,ˢ ,&@-&ˢ #+"+6ˢ $'(ˢ)$4&ˢ ")&ˢ - :&ˢ &%&(?ˢ 8#,ˢ ")&ˢ +$%&ˢ $+ˢ
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3] 5, '"&(ˢ @?ˢ > + 6?+ˢ * 6+ˢ $'(ˢ ! 6+ ˢ & +ˢ
5, '"&,+ˢ "#ˢ ")&ˢ D '.;+ˢ %#+'ˢ 9!&--&'"ˢ $>&+"?ˢ 0
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H3' . /' 3"D' O 7 3 # .' 72FD/6' 3"/ I4" I3' 3"D'
' (7 # DE' N' . /' C/ O 3 #4' 3"D' #GIE3/6' .'
3"D' O2#I O 33DG' 72FDE' N' 2#G' . /' H OCD#E23 #4'
3"D' +D/E #E' " 3"D/3 ' D#3 37DG' 3 ' 3"D' D/F HDE' .'
EIH"' 72FDE' [Q3"' % ' Q _

E ' (4&,+' 5&,+#'+' $,&')#-(&' ' ' -$4&,?' * ") ''
(4&,+' #8' +' $>&+"?;+' #-#' &+6' $'(' "' +'>1+"' $'(' &92&N
(&'"' ")$"' $--' +1!)' 5&,+#'+' +)#1-(' @&' %$'1% ""&(' $'('
+&"' 8,&&6' $'(' ")$"' $' ,&$+#'$@-&' #%2&'+$" #'' +)#1-(' @&' %$(&' "#' ")&'
5&,+#'+') ")&,"#' &'" "-&(' "#' ")&' &,4 !&+' #8' +1!)' -$4&+' 8#,' ")&' #++'
*) !)' ")&?' * --' '!1,' @?' @& '.' (&2, 4&(' #8' ")& ,' .)"' "#' +1!)'
&,4 !&+'] '(' *)&,&$+' "' +' $-+#' &92&(&'"' ")$"' 5,#4 + #'' +)#1-(' @&'
%$(&' 8#,' 2,#%#" '.' ")&' '(1+",?' $'(' +&!1, '.' ")&' .##(' #'(1!"' #8'
")&' 5&,+#'+' +#' "#' @&' %$'1% ""&(6' 8#,' $' - % "&(' 5&, #(' $8"&,' +1!)'
")& ,' $'1% ++ #''] '(' *)&,&$+' "' +' '&!&++$,?' ")$"' ")&' $*+' '#*'
'' 8#,!&' '' ")&' +$ (' +&4&,$-' #-#' &+' +)#1-(' 8#,") * ")' @&' $($2"&(' "#'
")&' '&*' "$"&' $'(' &-$" #'+' #8' #! &"?' ")&,& '' *) !)' * --' 8#--#*'
12#'' +1!)' .&'&,$-' $'1% ++ #'' $+' $8#,&+$ (' #8' ")&' +$ (' -$4&+' ' $'('
")$"6' '' #,(&,' "#' $88#,(' ")&' '&!&++$,?' %&' 8#,' +1!)' ($2"$" #'' #8'
")&' +$ (' $*+6' $' +)#," '"&,4$-' +)#1-(' &-$2+&' @&8#,&' +1!)' $'1% +N
+ #'' +)#1-(' "$:&' &88&!"] &' "' ")&,&8#,&' &'$!"&(' @?' ")&' D '.;+' %#+"'
9!&--&'"' $>&+"?6' @?' $'(' *")' ")&' (4 !&' $'(' #'+&'"' #8' ")&'
#,(+' 2 , "1$-' $'(' &%2#,$-6' $'(' #%%#'+6' '' ") +' 2,&+&'"' 5$,- $N
%&'"' $++&%@-&(6' $'(' @?' ")&' 1")#, "?' #8' ")&' +$%&')$"' 8,#%' $'('
$8"&,' ")&' ,+"' 3$?' #8' ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B'
8#1,

77' +D/E #E'
Z" ' #' 3"D'
E3' I4IE3'
Q 'E"277

"2FD' ODD#
/D4 E3D/DG' 2E
72FDE!' 2#G
E"27' 2CCD2/'
3"D' =D4 EL'
3/6' 3 ' OD' &'
-D2/E' 7G' /'
ICZ2/GE!'
E"27' ./ 0'
3"23' *26'
ODH OD'
2CC/D#3 HDG'
2O I/D/E

8#1,' $--' 5&,+#'+' *)#' '' !#'8#,% "?' * ")' ")&' $*+6' '#*' '' 8#,!&' '' ")&' +$ (' #-#' &+' ,&+2&!" 4&-?' +)$--' #'' #,' @&8#,&' ")&' ,+"' 3$?' #8' '&' ")#1+$'('& .)"')1'(,&('$'('") ,"?B8#1,')$4&' @&&'' (1-?' ,&. +"&,&('$+' -$4&+' ''$'?' +1!)' #-#'?6' $'(' *)#' #'' ")&' +$ (' ,7' 3$?' #8' '&' ")#1+$'('& .)"')1'(,&('$'('") ,"?B8#1,' +)$--')&' $!"1$--?' * ") ''$'?' +1!)' #-#'?6' $'(' *)#' +)$--' @?' +1!)' &. +", &+' $22&$,' "#' @&' #'' ")&' +$ (' ,+"' 3$?' #8' '&' ")#1+$'('& .)"')1'(,&('$'('") ,"?B8#1,' #8' ")&' .&' #8' 9' &$,+' #,' 12*$,(+7' +)$--' @?' 8#,!&' $'(' 4 ,"1&' #8' ") +' !"6' $'(' * ")#1"' ")&' 2,&4 #1+' 9A' &!1" #'' #8' $'?' '(&'"1,&' #8' 22,&'" !&+) 26' #,' #")&,' 3&&(' #,' '+",1%&'' 8#,'")$" 51,2#+&6' @&!#%&' $'(' @&' $22,&'" !&(' $@#V,&,+' ' 2,#4 (&(' ")$"6' 8#,' ")&' 51,2#+&+' $8#,&+$ (6' &4&,?B -$4&' &'.$.&(' '') +' #,('$,?' !!12$" #'' #'' ")&' &$+' +)$--' @&' (&&%&(' $'(' "$:&'' "#' @&' * ") '' ")&' #-#'?"#' *) !)' +1!)' -$4&' +)$--' @&-#'.

@" 'D#3 37DG'
3 ' D/F HDE'
.'3"D' 72FD'
2E' 2#' 2C^
C/D#3 HDG'
2O I/D/!

M ' '(' @&' "' 81,")&,' &'$!"&(6')$"' (1, '.' ")&' 2V" '1$'!&' #8' ")&' 22,&'" !&+) 2' #8' $'?' +1!)' $22,&'" !&(' $@#1,&,' EIH"' 5&,+#'' #,' 5&,+#'+' +)$--' @&' &'""-&(' "#' ")&' &,4 !&+' #8' +1!)' $22,&'" !&(' -$@#1,&,' $+' *#1-(' 8#,' ")&' %&' @& '.')$4&' @&&'' &'""-&(' "#' "E' #,')&,' &,4 !&+' $+' $' -$4&' 8' ") +' !"')$(' '#"' @&&'' %$(&

-' 72FDE'
O/ I4"3' #3 '
D8#7(#,$A
* "-8(#ED#3'
.'+ EEDEE /E!'
./DD'

' 5,#4 (&('$-+#6' $'(' @&' "' 81,")&,' &'$!"&(')$"' $--' -$4&+' *)#' %$?' $"' $'?' %&' 2,&4 #1+' "#' ")&' 2$++ '.' #8' ") +' !"')$4&' '@&&'' @,#1.)"' * ")' ")&' #'+&'"' #8' ")&,' 5#++&++#,+6' $'(' $--' $22,&'" !&(' $@#1,&,+' *)#' %$?')&,&$8"&,' * ")' ")&- :&' #'+&'"' @&' @,#1.)"6' "' 7' $'?' 5$,"' #8' ")&' V' "&(' D '.(#%' #8' ' (' $'(' +)$--' 8,#%' $'(' $8"&,' ")&' 2$++ '.' #8' ") +' !"' @&' $@+#-1"&-?' $'(' &'" ,&-?' 8,&& "#' $--' '"&'"+' $'(' 51,2#+&+' *)$"+#&4&,

CC/D#3 HDG'
!2O I/D/E'
3 ' OD' G F GDG'
#3 ' "/DD'
(72EEDE!' F d'
5 /2DG 27'
2332H"DG!'
_/2DG 27' I#^
2332H"DG!' 2#G
I # C/ DG 27

<' '(' *)&,&$+' "' +' &92&(&'"")$"$--' +1!)' $22,&'" !&(' $@#1,&,+' +)#1-(6' 8#,' ")&' 51,2#+&+B')&,& 'B$8"&,' %&'" #'&(6' @&' (4 (&(' '"#'),&&' (+" '!" -$++&+6' ")&' ,+"' #8' +1!)' -$++&+' !#'+ +" '.' #8' 2,%($-' $22,&'" !&(' $@#1,&,+' $""$!)&(' "#' ")&' #-6' $'(' !#%2, + '.' $--' 5&,+#'+' *)#' '' ")&,' "$"&' #8' -$4&,?' *&,&' 1+1$--?' &%2-#?&(' @' ., !1-"1,&6' #,' '' ")&' $'18$!"1,&' #8' #-#' $-' 5,#(1!&' 2,' #")&,* +&6' 12#'' $'(+' @&-#'. '.' "#' ")&' * '&,+' ")&' &!#'(' #8' +1!)' -$+Z ' !#'+ +" '.' #8' 2,%($-' $22,&'" !&(' $@#1,&,+' '#"' $""$!)&(' "#' ")&' #-6' $'(' !#%2, + '.' $--' 5&,+#'+' *)#' '' ")&' "$"&' #8' -$4&,?' *&,&' 1+1$--?' &%2-#?&(' '' ., !1-"1,&6' #,' '' ")&' $'18$!"1,&' #8' #-#' $-' 5,#(1!&' #,' #")&,* +&6' 12#'' $'(+' '#"' @&-#'. '.' "#' ")&' * '&,+' H' $'(' ")&'),(' #8' +1!)' -$++&+' !#'+ +" '.' #8' ""#'B2,$+(' $-' $22,&'" !&(' $@#1,&,+6' $'(' !#%2, + '.' $--' $22,&'" !&(' $@#1,&,+' '#"' '!-1(&(' * ") '' ")&' ,&' #8' ")&' * # 2,&!&('.' -$++&+] &' "' ")&,&8#,&' &'$!"&(')$"' +1!)' 3 4 + #'' $+' $8#,&+$ (' #8' ")&' +$ (' $22,&'" !&(' $@#1,&,+' '"#' +1!)' -$++&+' $+' $8#,&+$ (' +)$--' @&' !$,, &(' '"#' & 8&!"' +1H)' $''&,' $'(' #,%' $'(' +1@>&!"' "#' +1!)' 1-&+' $'(' &.1-$" #'+' $Y' +)$--' 8#,' ")$"' 51,2#+&' @&' &+"$@- +)&(' 1' (&,' +1!)' 1")#, "?6' $'(' '' $'(' @?' +1!)' !"+' #8' ++&%@-?6' ,('$'!&+6' #,' ,(&,+' '' #1'! -6' $+')&,& ''$8"&,' %&'" #'&(] 5,#4 (&(' $-*$?+6' ")$"' '#' 5&,+#'' #8' ")&' .&' #8' *&-4&' &$,+' $'(' 12*$,(+' +)$--' @?' #,' @?' 4 ,"1&' #8' $'?' +VH)' !"' #8' ++&%@-?6' ,('$'!&6' #,' ,(&,' '' #1'! -' @&' '!-1(&(' ''&")&,' #8")&' +$ (' *#' -$++&+' #8' 2,%($-' $22,&'" !&(' $@#1,&,+' 1'-&++' +1!)

+/ F E

5&,+#'+)$-- 8#, *&-4& $-&'($, #'")+ $"")& -&$+" '&9" @&8#,&")&
2$++ '. #8") + 2,&+&'" !")$4& @&&';)$@ "1$--? &%2-#?&(' ., !1-N
"1,& #, '")& $'18$!"1,& #8 #-#' $- 5,#(1!&

< '(@& " 81,")&, &'$!"&(6)$" '# 5&,+#' *)# @? 4 ,"1& #8 CC/D#3 HD
")+ !"6 #8 #8 $'? +1!) !" #8 ++&%@-?6 ,('$'!&6 #, ,(&, ' +)2 .'3"D
#1'! - $+ $8#,&+$ (6 +)$-- @&!#%& $ 2,$&($- $22,&'" !&($@#1,&,6 M
*)&")&, $""$!)&(#, '#" $""$!)&("# ")& # -6 +)$-- !#'" '1& ' +1!) 3 H #3 O D
22,&'" !&+) 2 @&?#'(")& ,+" 3$? #8 '& ")#1+$'(& .)" OD6 #G @
)1'(,&($'(8#,"? $'(")$" (1, '. +1!)) + #,)&, 22,&'" !&+) 2 I 4 I E37Q UN
'# +1!) 2,$&($- $22,&'" !&($@#1,&,6 *)&")&, $""$!)&(#, '#"
$""$!)&("# ")& # -6 +)$-- @& @#1'(#, - $@-&6 @? 4 ,"1& #8 +1!)
22,&'" !&+) 26 "# 2&,8#,%6 $'? $@#1, ' ")& &,4 !& #8) + #,)&,
%2-#?&, #, %2-#?&,+ 8#, %#,& ")$' #,"?B8 4& #1,+ '")& *)#-&
'$'? '& E&&:

'(@& "81,")&, &'$!"&(6)$" '# 5&,+#' *)# @? 4 ,"1& #8 .'3"D # #
")+ !" #, #8 $'? +1!) !" #8 ++&%@-?6 ,('$'!&6 #, ,(&, ' C/ DG 2? 2
#1'! - $+ $8#,&+$ (6 +)$-- @&!#%& $ '#'B2,$&($- $22,&'" !&(7&7 (+77
$@#1,&,6 +)$-- !#'" '1& ' +1!) 22,&'" !&+) 2 @&?#'(")& ,+" 1.71-
3$? #8 '& ")#1+$'(& .)")1'(,&($'(") ,"?B& .)"

< '(@& "81,")&, &'$!"&( )$" 8 @&8#,& $'? +1!) 22,&'N D. /D 3"D
" !&+) 2 +)$--)$4& &92 ,&(")& 5&,+#' #, 5&,+#'+ &'" "-&(8#, $'(CC/D#3 HD^
(1, '. ")& &%$ '(&, #8 $'? +1!) &,% "# ")& &,4 !&+ #8 +1!) E" C E
$22,&'" !&($@#1,&, +)$-- @& (&+ ,#1+ "# (+!)$,.&) % #,)&, 8,#% D&C /DG! 37JD
+1!) 22,&'" !&+) 26 " +)$-- @& -$*81- 8#, +1!) 5&,+#' #, 5&,+#'+ +# 2O I/D/
"# (# @? $'? 3&&(#, '+",1%&'" "# @& @?) %6)&,6 #, ")&% 8#, ")$" O 26 OD G E^
51,2#+& %$(& $'(&9&!1"&(*) !) 3&&(#, '+",1%&'"+)$-- @& '+1!) H"2/4DG O6
#,%6 $'(+)$-- @& &9&!1"&($'(,&!#,(&('+1!) $'&, $'(*") 3"D F 71#32/6
+1!) #-&%' "&+6 $+ +)$-- 8#, ")$" 51,2#+& @& 2,&+!, @&(1'(&, +1!) H3 ." E
1")#, "?6 $'(' $'(@? +1!) !"+ #8 ++&%@-?6 ,('$'!&+6 #, O C7 6D/
,(&,+ ' #1'! -6 $+)&,& 'B$8"&, %&'" #'&(] 5,#4 (&('&4&,")&-&++6 #' H2ED .'3"D
")$" 8 $'? 5&,+#' +# (+!)$,.&(8,#% $'? +1!) 22,&'" !&+) 2 @? F 71#32/6
$'? +1!) 4#-1'"$,? !" $+ $8#,&+$ (+)$-- $" ")$" %& @& #8 ")& * EH"2/4D .
.& #8 8"? &$,+ #, 12*$,(+6 #, +)$-- @& ")&' -$@#1, '. 1'(&, $'? 24DG /
+1!) 3 +&$+& #, %&'"$- #, @#(-? '8 ,% "? $+ %$? ,&'(&,) % #, #. /O 2C^
)&, '!2@-& #8 &$,'.) + #,)&, 1@+ +"&'!&6 ")&' $'(' &4&,? C/D#3 HDG
+1!) $+& ")& 5&,+#' #, 5&,+#'+ +# (+!)$,. '. $'? +1!) $22,&'" !&(2O I/D/E!
$@#1,&, $+ $8#,&+$ (+)$-- !#'" '1& $'(@& - $@-& "# 2,#4 (& 8#, 3"D O C7 6D/
")& 122#," $'($ '"&'$'!& #8 +1!) $22,&'" !&($@#1,&, (1, '. 3 H #3 # I D
")& ,&%$ ' '. &,% #8 +1!) #, . '$- 22,&'" !&+) 26 $+ 81--? $+ 7 2O7D . /
8 +1!) $22,&'" !&($@#1,&,)$('#" @&&' (+!)$,.&(")&,&8,#% 3"D / ICC /

< '(@& "81,")&, &'$!"&(6)$" " +)$--)& -$*81- 8#9 $'? CC/D#3 HDG
+1!) $22,&'" !&($@#1,&, "# 21,!)$+&) + #,)&, 3 +!)$,.& 8,#% 2O I/D/
+1!) 22,&'" !&+) 26 &4&' * ")#1")& #'+&'"6 #, '#22#+"#'6 8 O 26 C I /H7 2ED
'&!&++$,?6 "# ")& E -- #8")& 5&,+#' #, 5&,+#'+ &'" "-&("#) + #,)&, " E * EH"2/4D
&,4 !&+6 12#' 5$?%&'" "# +1!) 5&,+#' #, 5&,+#'+ #8 ")& $22,$ +&(242 #E 3"D
<$-1& #8 +1!) &,4 !&+ *) !) 22,$ +&%&'" +)$-- @& &88&!"&(6 @ 7 ." E
$'(*) !) 51,!)$+& #'&? +)$-- @& 2$ ($'($22- &(6 $'(*) !) O C7 6D/!
3 +!)$,.& +)$-- @& . 4&' $'(&9&!1"&(6 ' +1!) $'&, $'(#,%6 # 2# C^
$'(12#'6 1'(&,6 $'(+1@>&!" "# +1!) #'("#'+6 $+ +)$-- @& 2,&B C/2 ED O D#3
+!, @&(> Z C^
C/2 ED O D#3
2#G #F 71#

32/6 * E ' H"2/4D'3 ' OD &&&!"&(A

+!, @&(' 1'(&,' +1!)' 1")#, "?6 $'(' O6 +1!)' !"+' #8' EED OO76!
,('$'!&+6 #,' ,(&,+' '' #1'! -6 $+' $,&')&,& '$8"&,' %&'" #'&(

CC/D#3 HDG 2O I/D/E # 3 /DO F^ 2O7D ./ O' 3"D (7 #6 +/EDG 2 2CC/D#3 HDG 2O I/D/E # 3 /DO F^ 2O7D ./ O' 3"D +72#323 # D&HDC3 O6 (#ED#3 .' Z ' CDH 2 , I E3 HDE

' '(' @&' "' 81,")&,' &'$!"&(6)$"' '# $22,&'" !&(' -$@#1,&,' +@$ '
@&' +1@>&!"' #,' - $@-&' "# @&' ,&%#4&(' 8,#%' ")&' #-#'?' "# *) !)')&' / +)&'
%$?' @&-#' . ' $'(' ")$"' '# 2,%($-' $22,&'" !&(' $@#1,&,' *)2 %$?' ''
$''&,' $8#,&+$ (' @&!#%&' $""$!)&(' "# ")&' # -' +)$--' @&' +1@>&!"' #,'
- $@-&' "# 2&,8#,%' $'?' $@#1,' '' ")&' &,4 !&' #8') +' #,')&,' %2-#?&,' /
%2-#?&,+' &9!&2"' 12#' ' #,' '' #,' $@#1"' ")&' E #, :+' $'(' 1+ '&++' #8'")&'
5-$'"$" #'+' #,' +"$"&+' "# *) !)' +1!)' 2,$.($-' $22,&'" !&(' $@#1,&,'
+)$--')$4&' @&&'' $""$!)&(' #,' #'' *) !)')&' #,' +)&' +)$--')$4&' @&&''
1+1$--?' &%2-#?&(' #' ' #,' 2,&4 #1+-?' "#")&' +$ (' ,+' 3$?' #8' ') j'
")#1+$'(' & .)"')1' (,&(' $'(' ") ,"?B8#1,'] 5,#4 (&(' '&4&,")&-&++6 ")$"6
* ")' ")&' #'+&'' '' E, " ' .' #8' $'?' *# #,' %#,&' R1+" !&+' #8' ")&'
5&$!&')#-(' .' +1!)' 2&! $-' #%% ++ #'' $+')&,& 'B$8"&,' %&'" #'&(6
"' +)$--' @&' -$*81-' 8#,' ")&' 5&,+#' ' #,' 5&,+#'+' &'" "-&(' "# ")&' D/F HDE
#8' $'?' +1!)' $""$!)&(' 2,$&($-' $8_2,&'" !&(' $@#1,&,'),' 2O I/D/E
"# ",$'+8&,') +' #,' ")& ,' &,4 !&+' "# $'?' #")&,' +"$"&' #,' 5-$'"$" #''
* ") '' ")&' 7$%&' #-#'?' "# +1!)' 5&,+#'' #,' 5&,+#'+' @&-#' . ' .' *) !)'

(#ED#3 # 3 3 ' OD 4 FD# 3 7 3"D , I E3 HDE "2FD 2EHD/32 #DG 3"23 3"D =D^ O F2 Z 7 # 3 EDC2/23D 3"D BDOOD/E .'A2O 7 DE' > Z' (#ED#3 3 ' OD 4 FD# 2#G /DH /GDG

*, ""&'' #'+&''' +)$--' '' '# $+&' @&' . 4&'6 #,' @&' #8' $'?' <$- ("?6
1'-&++' $'?' +1!)' R1+" !&+' #8' ")&' 5&$!&' +)$--' 8 ,+"')$4&' $!&,7
"$ '&(' ")$"' +1!)' ,$'+8&,' *#1-(' '#"')$4&' ")&' 88&!"' # 8 ;+&2$,$" ' .'
$'?' +1!)' $""$!)&(' 2,.&($-' $22,&'" !&(' $@#1,&,' 8,#%') +' #,')&,'
E 8&' #,' 1+@$'(6 5$,&''' #,') -(6 #,' 8,#%' $'?' 5&,+#'' #,' 5&,+#'+'
,&21"&(' "# @&$,' $'?' +1!)' &-$" #'' "#) %' #,')&,6 $'(' ")$"' +1!)'
,$'+8&,' *#1-(' '#"' 2,#@$@-?' @&' '>1, #1+' "# ")&' &$-")' #,' E &-8$,&'
#8' +1!)' $""$!)&(' 2,$&($-' $22,&'" !&(' $@#1,&,' $'(' +1!)' *, ""&''
#'+&''' "# $'?' +1!)' &%#4$-' +)$--' @&' &92,&++&(' '' +1!)' &,%+6 $'('
+)$--' @&' '' &$!)' $+&' . 4&'6 $""&+"&(6 $'(',&!#,(&(' '' +1!)' $''&,6
$+' +)$--' 8#,' ")$"' 51,2#+&' @&' 2,&+!, @&(' 1'(&,' +1!)' 1")#, "?6 $'('
@?' +1!)' !"+' #8' ++&%@-?6 ,('$'!&+6 A$'(' ,(&,+' '' #1'! -6 $+'
)&,& 'B$8"&,' %&'" #'&('

= 4"3 3 ' 3"D D/F HDE .' 2CC/D#3 HDG 2O I/D/E 3 ' OD 3/2#E^ .D/2O7D +/ ^ CD/36! 2O I/D # 3 3 ' OD $DC2^ /23DG ./ O' @ .D! H

' '(' @&' "' 81,")&,' &'$!"&(' $'(' (&!-$,&(6)$"' ")&' .)"' #,'
'"&,&+"' #8' $'?' %2-#?&,' #,' %2-#?&,+' "# $'(' '' ")&' &,4 !&+' #8' $'?'
+1!)' $22,&'" !&(' $@#1,&,+' $+' $8#,&+$ (' +)$--' 2$++' $'(' @&' ",$'+8&,N
$@-&' @?' $,.$ '' $'(' $-&6 #'",$!"6 3&&(6 #'4&?$'!&6 E --6 #,'
3&+!&'"6 $!!#,(' .' "# +1!)' 1-&+' $'(' '' +1!)' $''&,' $+' +)$--' 8#,'
")$"' 51,2#+&' @&' 2,#4 (&(' @?' $'?' +1!)' !"+' #8' ++&%@-?6 ,('$'!&+6
#,' ,(&,+' '' #1'! -' $+')&,& 'B$8"&,' %&'" #'&(' ' 2,#4 (&(' ")$"' '#
+1!)' $22,&'" !&(' $@#1,&,' +)$--6 @?' 4 ,"1&' #8' $'?' +1!)' $,.$ '' $'('
$-&6 #'",$!"6 3&&(6 #'4&?$'!&6 E --6 #,' 3&+!&'"6 @&' +1@>&!"' #,'
- $@-&' "# @&' +&2$,$"&(' 8,#%') +' #,')&,' E 8&' #,' 1+@$'(6 5$,&'' #,'
) -(6 #,' 8,#%' $'?' 5&,+#'' #,' 5&,+#'+' ,&21"&(' "# @&$,' $'?' +1!)' &-$N
"#'' "#) %' #,')&,

OC7 6D/ 3 ' E I CC76 3"D 2O I/D Z 3"' E I H"' A G! H'2E 3"D 2Z' 23 C/DED#3 /D^ \ I /DE # H2ED .' 72FDE

' '(' @&' "' 81,")&,' &'$!"&(')$"' (1, '.' ")&' #'" '1$'!&' #8'
$'?' +1!)' 22,&'" !&+) 2' $+' $8#,&+$ (' ")&' 5&,+#'' #,' 5&,+#'+' 8#,' ")&'
%&' @&' '.' &'" "-&(' "# ")&' &,4 !&+' #8' &4&,?' +1!)' $22,&'" !&(' $A'
)#1,&,' +)$--' @&' $'(' +' $'('$,&')&,&@?' ,&C1 ,&(' "# +122-?') %' #,')&,'
* ")' +1!)' ##(6 -#") '.6 #(. '.6 &(! '&6 &(!$-' ""&'($'!&6
$'(' +1!)' #")&,A' $ '"&'$'!&' $'(' --#*$'!&+' $+' @?' $'?' $*' '#*' ''
8#,!&' '' ")&' #-#'?' "#) !)' +1!)' $22,&'" !&(' $'#1,&,' %$?' @&-#'

K' ' L' B' ' (2C

$-' * ' &,' +' ,&C1 ,&(' "#' +122-?' "#' $ ' (' 8#,' $ ' ?' -$4&' @& ' .' #8' ") &' +$%&' . &' $ ' (' 8' $+' +1!)' $22,&' " !&(' `$@#1,&,' +)$--' @&' ' $ ' (' ' ' $+&+' ' * @ (' ") &' ##(' #8' $ ' ? +1!)' 2,$&($-' $22,&' " !&(' $@#1,&,' +)$--' @&' +12N 2- &(6' '#" @?' ") &' 3&- 4&,?' "#') %' #,')&,' #8' 5,#4 + #' +6' @1' @?' ") &' 1-N " 4$" # ' @?' +1!)' 2,$&($-' $22,&' " !&(' $@#1,&,' #8' H,#1 ' (' +&" 2," 8#,' ") &' H,# * ") ' #8' 5,#4 + #' +6' ") &' 5&,+#' ' #,' 5&,+#' +' &' " "-&(' "#') +' #,')&,' &,4 !&+' +)$--' $ ' (' +' #,' $,&')&,&@?' ,&C1 ,&(' "#' 2,#4 (&' +1!)' 2 ' &($-' $22,&' " !&(' $@#1,&,' * ") ' H,#1 ' (' $(&C1$"&6' @#") ' ' T1$ ' " "?' $ ' (' T ' $- "?6' 8#,') +' #,')&,' 122#,"6' $ ' (' * ") ' ' $' ,&$+#' $@-&' 3 +"$ ' !&' #8') +' #,')&,' 1+1$-' 5-$!&' #8' @#(&6' $ ' (' "#' $--# * ' "#' +1!)' 2,+&($-' $22,&' N " !&(' $@#1,&,6' 8,#%' $ ' (' #1" #8' ") &' $ ' ' 1$-' %&' (1, ' . ' *) !)') &' #,' +) &' %$?' @&' ,&C1 ,&(' "#' -$@#1,6' $8"&,' ") &' $"&' #8' #,"?B8 4&' #1,+' 2&,B E &&:' $+' $8#,&+$ (6' ' ") &' &,4 !&' #8' +1!)') +' #,')&,' %N 2-#?&,' #,' %2-#?&,+6' +1!)' $' 5#," #' ' #8' %&' $+' +)$--' @&' $(&C1$"&' 8#,' ") &' 2,#2&,' 1-" 4$" # ' #8' +1!)' H,#1 ' (6' $ ' (' 8#,' ") &' ,$ + ' . ' $ ' (' +&!1, ' . ' ") &' ,#2+' ")&,&#' ' . ,# * >' ") &' $!"1$-' 9"&' #8' *) !)' H,#1 ' (76' $ ' (' ") &' 3 +"$ ' !&' ") &, &#8' 8,#%' ") &' 5-$!&' #8' &+ (&' !&' #8' ") &' 2,$&($-' $22,&' " !&(' $@#1,&,' 8#,' *)#+&' V+&' %$?' @&6+#' $--#"&(6' $ ' (' ") &' &' . ") ' #8' %&' "#' @&' (&(1!"&(' 8#,' ") &' 1-" 4$" # ' #8' ") &' +$ (' H,#1 ' (' 8,#%' ") &' +$ (' $ ' ' 1$-' %&6' +)$--' $ ' (' %$?6' ' &$!)' #8' ") &' #-C' &+' $8#,&+$ (6' @&' ,&. 1-$"&(' 1 ' (&,' +1!)' 1") #, " &+6' $ ' (' @?' +1!)' !"+' #8' ++&%@-?6' ,(' $ ' !&+6' #,' ,(&,+' ' #1 ' ! - ' $+')&,& 'B$8"&,' %&' " # ' &(

' ' (' @&' "' 81,") &,' &' $!"&(')$"6' +1@>&!' "#' ") &' @- . $" # ' +' %2#+&(' @?' ") +' !"6' #,' "#' @&' %2#+&(' @?' $ ' ? +1!)' !' #8' H&' &,$-' ++&%@-?6' ,(' $ ' !&6' #,' ,(&,' ' #1 ' ! - ' $+')&,& 'B$8"&,' %&' " # ' &(6' 12#' ' +1!)' $22,&' " !&(' $@#1,&,+' $+' $8#,&+$ (6' $--' $ ' (' &4&,?' ") &' 5&,N +#' +' *)#' #' ") &' +$ (' ,+' 3$?' #8' ' &' ")#1+$ ' (' & .)')1 ' (,&(' $ ' (' ") ,"?B8#1,' +)$--' @&')#-(&' ' -$4&,?' * ") ' $ ' ? +1!)' (' #-#' ?' $+' $8#,&+$ (' +)$--' 8 2#' ' $ ' (' 8,#%' $ ' (' $8"&,' ") &' +$ (' ,+' 3$?' #8' ' &' ")#1+$ ' (' & .)')1 ' (,&(' $ ' (' ") ,"?B8#1,' @&!#%&' $ ' (' @&' "#' $ -' ' "&' "+' $ ' (' 51,2#+&+' 8,&&' $ ' (' (+!)$, . &(' #8' $ ' (' 8,#%' $--' $ ' &,' #8' -$4&,?6' $ ' (' +)$--' @&' $@+#-1"&-?' $ ' (' 8#,' &4&,' %$' 1N % "&(' > $ ' (' ") $"') -(,&' ") &,&$8"&,' "#' @&' @#,' "#' $ ' ? +1!)' 5&,+#' +6' $ ' (' ") &' 88+2, ' . ' #8' +V!) -(,&' 6' +)$--' - :&' $ ' ' &,' @&' 8,&&' 8,#%' ") &,' ") ' $ ' (' ") $' 8,#%' $ ' (' $8"&,' ") &' +$ (' ,+' 3$?' #8' ' &' ")#1+$ ' (' & .)')1 ' (,&(' $ ' (' ") ,"?B8#1,' -$4&,?' +)$--' @&' $ ' (' +')&,&@?' 1"&,-?' $ ' (' 8#,' &4&,' $@#- +)&(' $ ' (' (&!-$,&(' 1 ' B' -$ * 81-' ") ,#1 .)#1" ") &' (' #-#' &+6' 5-$ ' "$" # ' +6' $ ' (' 5#++&++ #' +' @,#$(

' ' (' *)&,&$+' "' %$?')$22&' ' ") $"') -(,&' *)#')$4&' #' "#' $" $ ' '&(' ") &' .&' #8' 9' &$,+' #' ") &' +$ (' ,+' 3$?' #8' ' &' ")#1+$ ' (' & .)')1 ' (,&(' $ ' (' ") ,"?B8#1,6' #,' ")$") -(,&' *)#' $8"&,' ") $" 3$?A' %$?' @&' @#,' "#' $ ' ?' &%$-&' $22,&' " !&(' $@#1,&,+6' %$?' '#' @&' 2,#2&,-?' +122#,"&(' @?' ") & ' 5$,&' "+6' $ ' (' ") $" '#' #") &,' 5&,+#' %$?' @&' (+2#+&(' 4#-1 '"$, -?' "#' 1 ' (&,"$:&' ") &' 122#,' #8' +1!)') -N (,&' ' $ ' (' ' +' '&!&++$,?' ") $" 5,#4 + #' +)#1-(' @&' %$(&' 8#,' ") &' $ "&' ' $ ' ' !&' #8' +1!)') -(,&' ' $ ' ? +1!)' #' ' .&' !?' @&' ") &,&8#,&' &' $!"&(') $"' 8' $ ' ?') -(' *)#' #' ") &' +$ (' ,+' 3$?' #8' ' &' ")#1+$ ' (' & .)')1 ' (,&(' $ ' (' ") ,"?B8#1,')$(' '#' !#%2-&"&(') +' #,')&,' 9")' &$,6' #,' 8' $ ' ?) -(' "#' *) !)' $ ' ? (8)$-&' *) #' ') ' !)' $ ' ?

@"D/D D' 2 !-1-' $B' O D/' E"27' OD' O 2 ' 32 IDG' O6' 3"D! (I7 F23 #' .' +/ F E #' / I#GE!' 2' C/ XPD/' Y I 2#3 36' . / I#G' F 7' 7D E I /D' OD' 3 ' OD' ED3' 2C2/3' O6' 37 D' %2-#?&,

> Z' 3"D' &3D ' 2#G H27 36' . 3"D' +/ F E # H#17 U7 3"D' YT2#3 36' . OD' 2/D' 3 ' OD' /D4 I^ 723DG

I O5DH3' 3 ' 3"D' ' O7 423 #E' OC EDG' "D/DO6!' 27' 72FDE' # 37 D' ./ 3 E" (7 # DE' DO 2#H C23DG' ./ O' 3"D' E3 I 4 I E3' Q N' ./ O' Z" H" OD' 72FD/6' E"27' OD' 2O 7 E"DG' ! 3"/ I4" I3' 3"D' / 3 E" J * O # #E

7G/D#' OD7 Z' 3"D' 4D' . &' # E3 I 4 I E3' Q !' /' O /K' 2.3D/' 3"23' OD' 3 ' 2#6' AD O 27D' C^ C/D#3 HD!' . GDE3 3 I 3D!' O26' OD' O I#G' I3' O6' 2#6' CDH 27' B 24 E3/23D

2E 2# C^
C/D#3 HD 3 '
3"D +D/E #
D#3 37DG 3 '
3"D D/F HDE
.' 3"D
B 3"D/N O I3
23 3"D * 23D
.'E I H"' # '
GD"3 I /D5 3"D
CC/D#3 HD
O I E3 OD
I #GD/ ZD7FD
-D2/E .' 4D

&%$-& $22,&'" !&(' $@#1,&,' 88-"$' . 4& @ 8-)' #'" #,' $8"&,' ")&' +$ ('
,+" 3$?' #8' ' '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B8#1,6
+)$--' @&' @,#1.)" @&8#,&' $'?'R1+" !&' #8' ")&' 5&$!&')#-(' .'$'?'+1!)'
2&! $-' #%% ++ #'' $+')&,7OBO8"7' '$&Z"&'&Q_' & '(' 8' '" +)$--' @&'
%$(&' "#' $22&$,' "#' ")&' $" +8$!" #'6 #8' +1!)' R1+" !&' ")$" $'?' +1!)'
)-(' +' 1'2,#4 (&(' * ")' $'' $(&C1$"&' $ '"&'$'!&6 $'(' ")$"
+1!)')-(')$RD '#" !#%2-&"&(') O #,')&,' .&' #8' *&-4&' &$,+6
" +)$--' @&' -$*81-' 8#,' +1!)' R1+" !&6 $'(')&' +')&,&@?' ,&C1 ,&(6 #''
@&)$-8 #8' $'?' +1!)')-(66"#' &9&!1"&6 $)' R#7& "1,&' #8' 22,&'N
" !&+) 26 ")&,&@?' @ '(' .' +1!)')-(' $+' `'' $22,&'" !&(' $@#1,&,'6
"#' ")&' 5&,+#'' #,' 5&,+#'+' &'" 8>&(' "#'")&' &,4 !&+' #8' ")&' #")&,'
#8' +1!)')-(6 #,' *)#')$(')2&$' -$+" &' "-)('6"#' ")&' &,4 !&+' #8'
+1!)' #")&,' 6@1" '' !$+&6 8'+)$--' @&' %$(&' "#'$22&$,'"#' $'?' +1!)'
R1+" !&' ")$" +1!)' 5&,+#'' #,' 5&,+#'+' $8#,&+$ (' +' #,' $,&' 1'$@-&' #,'
1'8 " "#' &'"&,' "#' +1!)' '(&'"1,&6 $'('2,#2&,-?'"#' 2&,8#,%' ")&' #'N
("#'+' ")&,&#86 ")&'' " +)$--' @&' 7*81-' 8#,' +1!)' R1+" !&' $'(')&' +'
)&,&@?' ,&C1 ,&(' @?' +1!)' '(&'"1,&' "#' @ '(' $'?' +1!)')-(' "#' $'?'
#")&,' 5&,+#'' #,' 5&,+#'+' "#' @&' @?')1)' 8#,' ")$" 51,2#+&' $22,#4&(6
$'(' *)#' %$?@&' * -- ' .' $'(' $@-&B2,#2&,-?'"#' 2&,8#,%' +1!)' #'N
("#'+' ' $'(' " +)$--' @?' &4&,?' +1!)' '(&'"1,&' #8' 22,&'" !&+) 2' @&'
(&!-$,&(' *)&")&,' +1!)')-(' +)$-' ")&'!&8#,*$,(' @721.' "#' ")&' -$++'
#8' $""$!)&(' 2,$&($-' $22,&'" !&(' $@#1,&,+' #,' "#' ")&' -$++' #8'V'N
$""$!)&(' 2,$+($-' $22,&'" !&(' $@#1,&,+6 #,' "#' ")&' -$++' #8' '#'B'
2,$&($-' $22,&'" !&(' $@#1,7' 6 $'(' ")&' &,%' #8' +1!@' 22,&'" !&6
+) 2' #8' 6$'?'+1!)')-(' +)$--' @?' +1!)' '(&'"1,&' @&' - % "&(' $'(' %$(&'
"#' !#'" '1&' '' 8#,!&' 1'" -' +1!)')-(' +)$--')$4&' !#%2-&"&(') +' #,')&>,'
*&'"?B8 ,+" &$,6 $'(' 8"#' -#' .&,B6 $'(' &4&,?')-(' +#' $22,&'" !&('
$+' $8#,&+$ (' @?' ")&' ,(&,' #8' $'?'+1!)' R1+" !&' #8' ")&' 5&$!&' $+' $8#,&N
+$ (' +)$--' (1, ' .') +' #,')&,' 22,&'" !&+) 2' @&' 1@>&!" "#' $--' +1!)'
$'(' ")&' +$%&' 1-&+' $'(' &.1-$" #'+' ,&+2&!" ' .' ")&' E#,&& #,' $@#1,'
"#' @&' @?' ")&%' (#'&' #,' 2&,8#,%&(6 $'(' ,&+2&!" ' .' ")&' ##('$'(' ('#")&,'
122- &+' "#' @&' "#') %' #,')&,'81, ' 7&(6 $+' $'?' #")&,' +1!)' $22,&'" !&('
$@#1,&,+' $+' $8#,&+$ (' ' 5,#4 (&(' $-*$?+6 ")$" ")&' +$ (' '(&'"1,&' #8'
22,&'" !&+) 2' +)$--' !#'"$ '' +188 ! &'" E#,(+' #8' @- .$" #'' 12#'' ")&'
%2-#?&,' "#' $--#*' ,&$+#'$@-&' %&' $'(' H"#2#,"11 "?' 8#,' ")&' (1!$N
"#'' $'(' &- . #1+' '+",1!" #'' #8' +1!)')-(

> E B25DE36
/ 2#6 FD/^
/ O6 > E
I3" / 36
O26 2CC #3
, I E3 HDE .'
3"D +D2HD
O6 CDH 27
(O O EE #
3 ' 4 FD D..DH3
3 ' 3" E H3
2#G 3 ' 27
(7 # 27
2ZE 3 ' OD
O2GD # C I /^
E I 2#HD .'
3" E H3N 2#G
' 3"D/
Y I 27 . H23 #
#DHDEE2/6

<' '(' 8#,' &'+1, ' .' ")&' &88&!"1$-' ""2&! '"% (&'!&' W8 "- &' +$ ('
$22,&'" !&(' $@#1,&,+6 $'(' ")&' 9&!1" #'' #8") +' !"6 @&' " &'$!"&('
)$" " +)$--' $'(' %$?' @&' -$*81-' 8#,' +' $>&+"?' "#' ++1&6 #,' #
$1")#, L&' ")&' H#4&,'#,' #8' $'?' +1!)' #-#'?' $+' 7C,&+$ (6 '' ")&'
$%&' $'(' #'' ")&' &)$-8 #8' +' $>&+"?6 "#' ++1&' C'(&,' ")&' 51@- !'
&$- #8' $'?' +1!)' #-#'?6 '&' #,' %#,&' 2&! $-' #%1 "++ #'' #,' #%'
% ++ #'+' "#' $'?' '&' #,' %#,&' 5&,+#'' #,' 5&,+#'+6 ! !""+" "1" ' .') %' #,'
")&%' $ R1+" !&' #,' R1+" !&+' #8' ")&' 5&$!&' 8#,' ")&' *)#-&' #8'$--?' +1!)'
#-#'?6 #,' 8#,' $'?' 5$, +)6 5,&!%! ' T1$,"&,6 #,' #")&,' 3 +"8 !" * ") ""
")&' +$%&6 8#,' ")&' +2&! $-' 51,2#+&' #8' . 4 ' .' &88&!" "#' ") +' 2,&+&'" !"6
$'(' "#' $'?' $*+' *) !)' %$?6 '' %$''&,' @&,&-'B$8"&,' %&'" #'&(6 @&'
%$(&' 8#,' . 4 ' .' %#,&' !#%2-&"&' 88&!" "#' ")&' +$%&' ' $'(' &4#7' 5&,N
+#'' "#' #,' '' 8$4#1,' #8' *)#%' $'?' +1!)' #%% ++ #'' %$?' @&' ++1&('
+)$--' @?' 8#,!&' $'(' 4 ,"1&' ")&,&#8' $'(' * ")#1" $'?' #")&,' T1$- 8 !$N
"#'6 @&' &'"-&(' $'(' !#%2&"&'" "#' $!"7 ' $' R) " &' #8' ")&' 5&$!&'
* ") '' ")&' 3% "+' 2,&+!, @&(' @?' +1!)') +' #%% ++ #'' 8#,' +1!)'
+2&! $-

+2&! $- 51,22+&+ $8#,&+$ (6 @1" 8#,' '# #")&,' 51,2#+&+] 5,#4 (&(IH",IE3 HDE
'&4&,")&-&++6 ")$" '#") '.')&,& '' !#'"$ '&('+)$-- 2,&4&'" #,' @& !#'B
7",1&("# 2,&4&'" $'? 5&,+#'' !#%% ++ #'&($+ $ R1+" !& #8")& 5&$!& " ' D#D/27
8#,' +1!)' +2&! $- 51,2#+& $+ $8#,&+$ (8,#% @& '.' '!-1(&('' ")& #%%++##
H&'&,$- #%% ++ #'' #8 ")& 5&$!& 8#,' $'? +1!)' #-#'?6 #,' 8#,' $'? #8 -;&&J'
5$, +)6 5,&! '!"6 T1$,"&,6 #,' #")&,' 3 +", !" ")&,&#86 '' !$+& '" +)$--
+&&% 8 " "#' + $>&+"?6 #,' "# ")& H#4&,'#,' #8$'? +1!)' #-#'?
$!" '.' @? + $>&+"?;+ 1")#, "?6 "# $((,&++ @#")' +1!)' 2&! $-
#%% ++ #'' $'(' +1!)' H&'&,$- #%% ++ #'' $+ $8#,&+$ ('' $'? $+&
"# ")& +$%& 5&,+#'' 5&,+#'+7 ;

<' '(' @& "81,")&,' &'$@-&(6)$" + $>&+"? +)$-- @& $'(E B 25DE36
)& +)&,&@? $1")#, L&("#A .,$'" "# $'? 5&,+#'' #,' 5&,+#'+6 '#" 026 4/2#3
&9!&&('.' '&)1'(;&('' ")& *)#-&_`)#-('.' $'? +V!)' 2&! $- 272/ DE 3 '
#%% ++ #'' #,' #%% ++ #'+ $+ $8#,&+$ (6 $'('+# 8,#% %& "# %& CDH 27
$+ <$!$'! &+ %$?#!!1,' $-$, &+ $" $'('$8"&,'$ $"&)#" &9!&&('.' ,IE3 HDE
'' $'? $+& ")& 1% #8),&&)1'(,&(5#1'(+ "&,- '.' ' *'
*) !)' $-$,? +)$-- @& 2$?$@-& +# -#'.' #'-? $+ $'? +1!)' R1+" !& #8
")& 5&$!& +)$-- ,&"$ '' $'? +1!)7 2&! $- #%% ++ #'6 $'(' +)$-- @&
$!"1$--? ,&+ (&'" '' +1!)' #-#'?6 $'('&'.$.&('' ")& 3 +!)$,.& #8")&
31" &+ #8 +1!)') + 88 !& ' 2,#4 (&(")$" '# 5&,+#'' ,&!& 4 '.' #,'
&'" "-&("# ,&!& 4& $'? $-8 5$?6 5&'+ #'6 #,' --#*$'!& 8#,' #,' ''
,&+2&!" #8 $'? 2$+" &,4 !&+ '' + $>&+"?;+ 4- #,' $'(#,!&+
+)$--6 @? ")& !!&2"$'!& #8 $'? +1!)' 2&! $- #%% ++ #'' #,' $-$,?
$+ $8#,&+$ (6 8#,8&" #,' @&!#%& '!2@-& #8 ,&!& 4 '.' #,' -#+&) +
.)" "# ,&!& 4& +1!)' $-8 5$?6 5&'+ #'6 #,' --#*$'!&6 #,' $'? 5$,"
")&,&#86 $'? $*6 "$"1"&6 #,' V+$.& "# ")& !#'",$,? '' $'?* +& '#"N
* ")+"$'('.'] 5,#4 (&('$-+#6 ")$" ")&,& @&$''1$--? -$ (@&8#,& @#")' E3E .'EIH"'
#1+&+ #8 5$; $%&'" $ +" #8 ")&' $%&+ #8 $-- 5&,+#'+ "# *)#% +D/E #E
$'?+ !)' $-$,? +)$-- @& +# .,$'"&(6 +2&! 8? '.' ")& 3$"& #8 &4&,? 3 ' OD 72 G
+1!)' #%% ++ #'6 $'(' ")& %#1'" #8 ")& $-$,? $++ .'&("# &4&,? OD. /D +2/^
+1!)' R1+" !& #8 ")& 5&$!& 7 2 0 D#3

< 6 '(' *)&,&$+ " + '&!&++$,? ")$" 4$, #1+ 1-&+ $'(=DH 327 .'
&.1-$" #'+ +)#1-(@& 8,$%&($'(' &+"$@- +)&(8#,' $+!&,"$ ' '.6 * ")' F2/ IE=D^
,&8&,&'!& "# &$!)' $22,&'" !&($@#1,&,' *") '' ")& +$ (#-#' &+
,&+2&!" 4&-?6 *)&")&,')& #,' +)& @&-#'.+ "# ")& -$++ #8 $""$!)&(.4'.' 8&&'"
2,$&($- $22,&'" !&($@#1,&,+6 #,' "# ")& -$++ #8 1'$""$!)&($22,&'B 3 ' 3" E H3 '
"!&($@#1,&,+6 #,' "# ")& -$++ #8 '#'B2,$&($- $22,&'" !&($N
@#1,&,+6 $'(' 8#,' (&"&,% '.' ")& $''&,' $'(#,% '' *) !)' $'(
")& #-&%' " &+ * ")' *) !)' ")& 4#-1'"$,? 3 +!)$,.& #8 $'? $22,&'N
" !&($@#1,&,' 8,#% +1!)') + #,')&,' 22,&'" !&+) 2 %$? @& &8"&!"&(6
$'(' 8#,' 2,&+!, @ '.' ")& #,% $'($''&,' '' *) !)' $'(")& #-&%B
' " &+ * ")' *) !)' ")& 51,!)$+& @? $'? +1!)' $22,&'" !&($@#1,&,'
#,') + #,')&,' 3 +!)$,.& 8,#% +1!)' 22,&'" !&+) 2 * ")#1"6 #,' ''
#22#+ " #'6 8 '&!&++$,?6 "#6 ")& #'+&'" #8 ")& 5&,+#'' #,' 5&,+#'+
&'" "-&("#) + #,')&,' &,4 !&+6 +)$-- @& &8&&!"&(6 $'(')#*' ")& '&!&+N
+$,? 22,$ +&%&'" #8 ")& 81"1,& <$-1& #8 +1!)' &,4 !&+ +)$-- @&
%$(&6 $'(')#*' $'(' "# *)#% ")& %#1'" #8 +1!)' 22,$ +&%&'"
+)$-- '' &$!)' $+& @& 2$ ($'(' $22- &(6 $'(' '' *)$" $''&,' $'(
#,% $'(' @? *)#% ")& 3 +!)$,.& 8,#% $'? +1!)' 22,&'" !&+) 2
+)$-- ")&,&12#'' @& . 4&'6 &9&!1"&(6 $'(' ,&!#,(&(' $'(' " + $-+#
'&!&++$,?6 8#,' ")& 5,&+&,4$" #'' #8 5&$!& "),#1.)#1" ")& +$ (
' ' #-#' &+

L B (2C

#-#' &+6 ")$" 2,#2&, &.1-$" #'+ O)# -J &8,2&($'(&+"$@- +)&(
8#, ")& $ '"&'$'!& #8 ,(&, $'(.##(3 +! 2- '& $%#'.+"
")& +$ ($22,&'" !&($@#1,&8+6 $$(8#, &'+$, '." ")& 21'!"1$- 3 +N
!)$,.& #8")& &,4 !&+ (1& @? ")&% "# ")&, ,&+2&!" 4& %2-#?&,+6
$'(8#, ")& 5,&4&'" #' $'(51' +)%&'" #8 '(#-&'!&6 #, ")& &.-&!"
#, %2,#2&, 5&,8#,%$'!& #8 E#,: @? $'?+1!) $22,&'" !&($@#1,&,6
$'(8#, &'8#,! '. ")& (1& 5&,8#,%$'!& @? $'? +1!) $22,&'" !&(
$@#1,&, #8 $'? #'",$!" '"# *) !))& #, +)& %$? 4#-1'"$, -?
&'"&, 8#, $'?) ,&(&,4 !& (1, '. ")& %& ' *) !))& #, +)& %$?
'#" @& @#1'("# -$@#1, 8#,) + #,)&, %2-#?&,6 $'(8#, ")& 5,&4&'N
"#' $'(51' +)%&'" #8 '+#-&'!&6 $'('+1@#,('$" #' #' ")& 5$,"+
#8$'? +1!) $22,&'" !&($@#1,&,+ "#*$,(+ ")&, %2-#?&,+6 $'(8#,
")& 5,&4&'" #' #, 51' +) '$&'" #8 <$.,$'!? #, #8$'? #'(1!" #' ")&
5$," #8 $'? +1!) $22,&'" !&($@#1,&,+ '>1, '. #, "&'('. "# ")&
'>1,? #8 ")& 5,#2&,"? #8$'? +1!) %2-#?&,6 $'(8#, ")& 122,&++ #'
$'(51' +)%&'" #81'? #" #, !#%@ '&(&+ +"$'!& #8 ")& $*+ #'
")& 5$," #8 $'? +1!) $22,&'" !&($@#1,&,+6 $'(8#, 2,&4&'" '. ")&
+!$2& #8 $'? +1!) $22,&'" !&($@#1,&,+6 (1, '. ")&, &,% #8
22,&'" !&+) 26 8,#% ")& #-#' &+6 "# *) !) ")&? %$? ,&+2&!" 4&-?
@&-#'.] '(*)&,&$+ " * -- $-+# @&A7'&!&++$,? 8#, ")& 5,#"&!" #' #8
+1!) $22,&'" !&($@#1,&,+ $+ $7,&+$ (")$" 4$, #1+ &.1-$" #'+
+)#1-(@& 8,$%&($'(&+"$@- +)&(' ")& +$ (,&+2&!" 4& #-#' &+ 8#,
+&!1, '. 51'!"1$- "? $'(&")#(' ")& 122-? "# ")&% #8 +1!)
##(6 -#") '.6 #(. '.6 &(! '&+6 &(!$- ""&'($'!&6 $'(+1!)
#")&, $ '"&'$'!& $'(--#*$'!&+ $+ ")&? $,&)&,& 'B@&8#,& (&!-$,&(
&'" "-&("# ,&!& 4&6 $'(8#, ,&.1-$" '. ")& %#1'" $'(T1$ "? #8 $--
1!) ," !-&+ ' $+&+ *)&,& ")& $*+ $" 2,&+&'" &9 +" '. ' $'?+ -!)
#-#'? %$? '#" ' ")& $ & #8 -$4&+ '$4& %$(& $'? &.1-$" #'
#, $'? $(&C1$"& &.1-$" #' 8#, ")$" 51,2#+& $'(" + $-+# '&!&+N
+$,? ")$" 2,#2&, 1-&+ +)#1-(@& &+"$@- +)&(8#, ")& 5,&4&'" #' $'(
51' +)%&'" #8 $'? ,$1(+ *) !) % .)" @& 2,$!" +&(6 #, #8$'? % +N
+#'+ #, &.-&!"+ 4) !) % .)" #!!1,6 ,&>&!" '. ")& T1$'" "? #, ")&
T1$- "? #8 ")& 122- &+ +# "# @& 81,' +)&(> #, ,&+2&!" '. ")& 5&, #(+
8#, ")& 3&- 4&,? #8 ")& +$%&] '(*)&,&$+ " + '&!&++$,?6 ' ")#+&
$+&+ ' *) !) ")& ##(#8$'? +1!) 2,$+($- $22,&'" !&($@#1,&,+
$+ $8#,&+$ (%$? & ")&, *)#--? #, ' 2$," @& ,$ +&(@? ")&%+&-4&+
@? ")& 1-" 4$" #' #8 H,#1'("# @& +&" 2," $'($--#""&(B 8#, ")$"
51,2#+&6 ")$" 2,#2&, &.1-$" #'+ +)#1-(@& %$(& 7'(&+"$@- +)&(
$+ "# ")& 9"&'" #8 +1!) H,#1'(+6 $'("# ")& 3 +"$'!& $" *) !)
+1!) H,21'(+ %$? @& +# $--#""&(8,#% ")& #,('$,? 5-$!& #8 @#(&
#8 +1!) 2,&($- $22,&'" !&($@#1,&,+6 $'(,&+2&!" '. ")& 3&(1!N
"#'+ "# @& %$ & 8,#% ")& 1-" 4$" #' #8 +1!) H,#1'(+ 8,#% ")&
$''1$- %& (1, '. *) !) +1!) 2,%($- $22,&'8&&($@#1,&,+
$,&)&,& 'B@&8#,& (&!-$,&(- $@-& "# -$@#1,] '(*)&,&$+ " %$?
$-+# @& '&!&++$,?6 @? +1!) &.1-$" #'+ $+ $8#,&+$ (6 "# +&!1,& "# ")&
+$ (2,$&($ $22,&'" !&($@#1,&,+ ")& '>#?%&'" 8#, ")&, #*'
&'&8 " #8 ")$" 5#," #' #8 ")&, %& (1, '. *) !) ") 7 $,& '#"
)&,&@? ,&C1 ,&("# -$@#1, ' ")& &,4 !& #8 ")&, ,&+2&!" 4& %2-#?!,+77
$'(8#, +&!1, '. 9$!"'&++ ' ")& #%21"$" #' #8 ")& %& (1, '.
*) !) +1!) 2,%($- $22,&'" !&($@#1,&,+ $,&)&,&@? ,&C1 ,&("#
-$@#1, ' ")& &,4 !& #8 +1!) ")&, ,&+2&!" 4& %2-#?&,+ $'(" +
$-+# '&!&++$,? ")$" 5,#4 +#' +)#1-(@& %$(& 8#, 2,&4&'" '. ")&
%2#+ "#' #8 $+:B*#,: #' $'?+1!) $22,&'" !&(7$@#1,&, * ")#1"
@ +

a / B ' ' (2C

--+' ')&,' 8,&&' #'+&'"' "#' 1'(&,"$:&' ")&' +$%&67 >1"' "' %$?' @&' '&!&+B'
6+$,?' @?' +1!)' &.1-$" #'+' '' !&,"$ '' $+&+' "#' ,&C1 ,&' $'(' 2,#4 (&' 8#,'
")&' !C1 &+!&'!&' #8' ")&' '#, "?' #8' ")&' 2,%($-' $22,&'" !&('
$@#1,&,+' $""$!)&(' "#' $'?' 5-$'"$" #'' #,' +"$"&' '' ")&' 3 +", @1" #''
$'(' 22#," #'%&'"' $%#'.+"' ")&' *)#-&' #(?' #8' +1!)' $@#1,&,+' #8'
$'?' $+:B*#,:' *) !)' ")&' $>#, "?' #8' +1!)' #(?' +)$--' @&' * -- '.'
$'(' (&+ ,#1+' !#--&!" 4&-?' "#' 1'(&,"$:&' ' $'(' "' +' $-+#' '&!&++$,?' ")$"'
&.1-$" #'+' +)#1-(' @&' %$(&' ,&+2&!" '.' $'?' 4#-1'"$,?' #'",$!"+'
'"#' *) !)' $'?' $22,&'" !&(' $@#1,&,+' %$?' &'"&,' * ")' ")& ,' ,&+2&!A6
" 4&' %2-#?&,+' #,' * ")' $'?' #")&,' 5&,+#'' 8#,') ,&(' &,4 !&' 8#,' $'?'
81"1,&' 5&, #(6' $'(' 8#,' - % " '.' ")&' .,&$"&+"' 5&, #(' #8' %&' "#' *) !)'
+1!)' 4#-1'"$,?' #'",$!"' %$?' &9"&'(6' $'(' 8#,' &'8#,! '.' ")&' 21'!"1$-'
$'(' &88&!"1$-' 5&,8#,%$'!&' #8' +1!)' 4#-1'"$,?' #'",$!"+' #'' ")&' 5$,"'
@#")' #8' +1!)' $22,&'" !&(' $@#1,&,+' $'(' #8' ")&' 5&,+#'' #,' 5&,+#'+'
&'.$. '.' 8#,' ")& ,' %2-#?%&'"' $'(' ,&' $'(' "' +' $-+#' '&!&++$,?'
")$"' &.1-$" #'+' +)#1-(' @&' %$(&' 8#,' ")&' 5,&4&'" #'' #,' 51' +)%&'"'
#8' $'?' ,1&-"?6' '>1+" !&6' #,' #")&,' E ,#' .' #,' '>1,?' *) !)' %$?' @&'
(#'&' "#' #,' '8- !"&(' 12#'' $'?' +1!)' $22,&'" !&(' $@#1,&,+' @?' ")&'
5&,+#'+' &'" "-&(' "#' ")& ,' &,4 !&+' $'(' "' +' $-+#' '&!&++$,?' ")$"'
2,#2&,' &.1-$" #'+' +)#1-(' @&' ' $(&' ,&+2&!" '.' ")&' $''&,' $'(' #,%'
'' *) !)' +1!)' '(&'"1,&+' #8' 22,&'" !&+) 2' $+' $8#,&+$ (' +)$--' @&'
%$(&' #)' @&)$-8' #8' +1!)') -(,&'' $+' $8#,&+$ (6' $'(' ,&+2&!" '.' ")&'
,&. +"&, '.' $'(' 5,&+&,4$" #'' #8' $--' +1!)' '(&'"1,&+' '(' *)&,($+'
"' +' $-+#' '&!&++$,?' ")$"' 5,#4 + #'' +)#1-(' @&' %$(&' 8#,' &'+1, '.'
5,#%2" "1(&' $'(' 3 +2$"!)6' $'(' 8#,' 2,&4&'" '.' $--' 1''&!&++$,?'
92&'!&6' '' ")&' 3 +!)$,.&' @?' ")&' R1+" !&+' #8' ")&' 5&$!&')#-('.' +1!)'
2&! $-' #%% ++ #'+' $+' $8#,&+$ (' #8' ")&' R1, +(!" #''$'(' 1")#, " &+'
")&,&@?' !#%% ""&(' "#' ")&%6' $'(' 8#,' &'$@- '.' +1!)' R1+" !&+' "#' (&! (&'
'' $' +1%%$,?' E $?' +1!)' T1&+" #'+' $+' %$?' @&' @,#1.)"' @&8#,&' ")&%' ''
")$"' 2! "?6' $'(' 8#,' ")&' 3 4 + #'' #8' ")&' +$ (' ,&+2&!" 4&' #-#' &+'
'"#' 3 +", !"+' 8#,' ")&' 51,2#+&+' #8' +1!)' R1, +(!" #'6' $'(' 8#,' ")&' 8,&N
C1&'"' $'(' 21'!"1$-' < + "$" #'' @?' +1!)' R1+" !&+' #8' ")&' 5&$!&' #8' ")&'
$22,&'" !&(' $@#1,&,+' * ") '' +1!)' ")& ,' ,&+2&!" 4&' 3 +", !"7' $'(' "' +'
$-+#' '&!&++$ B?' ")$"' &.1-$" #'+' +)#1-(' @&' %$(&' 8#,' '(&%' 8? '.' $'('
2,#"&!" '.' +1!)' R1+" !&+' #8' ")&' 5&$!&' '' ")&' 12, .)"' 9&!1" #'' $'('
3 +!)$,.&' #8' ")& ,' 31" &+'] '(' *)&,&$+' +1!)' &.1-$" #'+' $+' $8#,&N
+$ (' !#1-(' '#"' * ")#1"' .,&$"' '!#'4&' &'!&' @&' %$(&' &9!&2"' @?' ")&'
,&+2&!" 4&' H#4&,'#,+6' #1'! -+6' $'(' ++&%@- &+6' #,' #")&,' -#!$-' &. +N
-$"1,&+' #8' ")&' +$ (' ,&+2&!" 4&' #-#' &+6' #,' @?' +' $>&+"?6' * ")' ")&'
(4 !&' #8' +' 5, 4?' #1'! -6' '' ,&8&,&'!&' "#' ")#+&' #-#' &+' "#' *) !)'
")&' &. +-$" 4&' 1")#, "?' #8' +' $>&+"?' '' #1'! -' &9"&'(+'] @&' "'
")&,&8#,&' &'$!"&('$'('(&!-$,&(')$"' '#") '.' '' ") +' !"' !#'"$ '&('
&9"&'(+' #,' +)$--' @&' !#'+",1&('"#' &9"&'('"#' 2,&4&'"' ")&' '$!"%&'"' @?'
")&' ,&+2&!" 4&' H#4&,'#,+6' #1'! -+6' $'(' ++&%@- &+6' #,' @?' +1!)' #")&,' '
-#!$-' &. +-$"1,&+' $+' $8#,&+$ (6' #,' @?' +' $>&+"?6' * ")' ")&' (4 !&'
#8' +' 5, 4?' #1'! -6' #8' $'?' +1!)' !"+' #8' H&'&,$-' ++&%@-?6' #,'
T,('$'!&+6' #,' ,(&,+' '' #1'! -' $+' %$?' @&' ,&C1 + "&' 8#,' %$: '.'
$'(' &+"$@- +) '.' +1!)' +&4&,$-' 1-&+' $'(' &.1-$" #'+' $+' $8#,&+$ (6' #,'
$'?' #8' ")&%6' #,' 8#,' !$,,? '.' ")&' +$%&' #,' $'?' #8' ")&%' '"#' 81--' $'('
!#%2-&"&' 88&!"] 5,#4 (&(' '&4&,")&-&++6' ")$"' "' +)$--' '#"' @&' -$*81-'
8#,' $'?' +1!)' H#4&,'#,6' #1'! -6' $'(' ++&%@-?6' #,' 8#,' $'?' +1!)'
-#!$-' &. +-$"1,&6' #,' 8#,' +' $>&+"?' '' #1'! -6' @?' $'?' +1!)' !"+'
#8' ++&%@-?6' ,('$'!&+6' #,' ,(&,+' '' #1'! -' $+' $8#,&+$ (6' "#'
%$:&

" E' H3' # 3'
3 ' C/DFD#3'
3"D' #2H3^
O D#3!' O6'
(7 # 2!' E^
ED O O7 DE' /' O6'
> E' B 25DE36'
#' (I#H 7!'
.'3"D' 2 F E'
#DHDEE2/6' . /'
DE32O7 E" #4'
E I H"' = D4 I ^
723 #E
+/ F E #E' /D^
C I 4#2#3' 3

' ' $ B ' ' (2C N

3" E H3 H #' %$:&' #,' &+"$@- +)' $'?' '$!"%&'"6' &.1-$" #'6' 5,#4 + #'6' 1-&6' #,'
EIH"' (7 # 27 *) !)' +)$-' @&' '' $'?* +&' ,&21.'$'"' #,' !#'",$(!"#,?' " 8
2Z' F G ' 2,&+&'"' !"' #,' $'?' 5$,"' ")&,&#87' * "' ")$"74&,?' +1!)' '$!"N
%&'"6' &.1-$" #'6' 5,#4 + #'6' 1-&6' #,' ,(&,' +)$--' @&' $'(' +')&,&@?'
(&!-$,&(' "#' @&' $@+#-1"&-?' '1--' $'(' 4# (' $'(' #8' '#' &88&!"

IH"' (7 # 27 < ' 5,#4 (&(' $-+#6' $'(' @&' "' 81,")&"' &'$!"&(6')$"' "' +)$--
H3E 026 # 3' O.' -$*81-' 8#,' $'?' +1!)' H#4&,'#,6' #1'! -6' $'(' ++&%@-?6' #,'
*))2A ''#,7 ")&,' #-#' $-' &. +-$"1,&6' #,' 8#,' +' $>&+"?' '' #1'! -6' @?' $'?'
3"D/+I# E"' +1!)' !"6' ,('$'!&6' #,' ,(&,' '' #1'! -6' "#' $1")#, L&' $'?' 5&,+#'6'
#D#3' .'3"D' #,' 5&,+#'+' &'" "-&(' "#' ")&' &,4 !&+' #8' $'?' +1!)' $22,&'" !&(' $@#1,&,6'
20 I/D/' #,' $'?' #")&,' 5&,+#'' #,' 5&,+#'+' #")&,'")$'' +1!- 'R1+" !&+' #8' ")&' 5&$!&'
O6' 3"D' O^)#-('.' +1!)' 2&! $-' #%"" ++ #'+' $' $8#,&+$ (6' "#' 21' +)' $'?' +1!)'
C7 6D/E $22,&'" !&(' $@#1,&,' 8#,' $'?' 88&'!&' @?') %' #,')&,' !#%% ""&(' #,'
I3" / 36 $--&.&(' "#')$4&' @&&'' !#%% ""&(' @?' ")&' *) 22 '.6' @&$" '.6' #,' %N
2, +#'%&'"' #8') +' #,')&,' 5&%#'6' #,' @?' $'?' #")&,' 2&,+#'$-' #,' #")&,'
#,,&!" #'' #,' 51' +)%&'"' *)$"+#&4&,6' #,' @?' $'?' ((" #'' "#' ")&'
#1,+' #8' $@#1,')&,& ''@&8#,&' - % "&(' '#,' "#' $1")#, L&' $'?' #1,"6'
R1(.&6' #,' R1+" !&' #8' ")&' 5&$!&' "#' 21' +)' $'?' +1!)' $22,&'" !&(' $N
@#1,&,6' @& '.' $' &%$-&6' 8#,' $'?' 88&'!&' @?')&,' !#%% ""&(6' @?' *) 2N
2 '.' #,' @&$" '.')&,' &,+#''>' $'(' ")$"' &4&,?' '$!"%&'"6' &.1-$" #'6'
5,#4 + #'6' 1-&6' #,' ,(&,' 8#,' $'?' +1!)' 51,2#+&' '' $'?' +V!)' !"6'
,('$'!&6' #,' ,(&,' '' #1'! -' !#'"$ '&(' +)$--' @&' $'(' +')&,&@?'
(&!-$,&(' "#' @&' $@+#-1"&-?' '1--' $'(' 4# (' $'(' #8' '#' &88&!"] 5,#4 (&('
$-*$?+6' ")$"' '#") '.' '") +' !"' !#'"$ '&(' (#")' #,' +)$--' &9"&' (' "#'
&9&%2"' $'?' $22,&'" !&(' $@#1,&,' '' $'?' #8' ")&' +$ (' #-#' &+' 8,#%'
")&' 2&,$" #'' #8' $'?' $E' #,' 5#- !&' &.1-$" #'' *) !)' +' #,' +)$--' @&' ''
8#,!&' ")&,& '' 8#,'")&' 5,&4&'" #'' #,' 51' +)%&'"' #8' $'?' 88&'!&6' +1!)'
$*' #,' 5#- !&' &.1-$" #'' @& '.' '' 8#,!&' $.%'+"' $'(' $22- !$@-&' "#' $--'
#")&,' 5&,+#'+' #8' 8,&&' #'(" #'

(7 # 27 H3E < ' 5,#4 (&(' $-+#6' $'(' @&' "' 81,")&,' &'$!"&(')$"' "' +)$--' '#"
/' '/GD/E # @&' -$*81-' 8#,' $'?' +1!)' H#4&,'#,6' #1'! -6' $'(' ++&%@-?6' #,' 8#,' $'?'
(I#H 7 # 3' +1!)' -#!$-' &. +-$"1,&6' #,' 8#,' +' $>&+"?' '' #1'! -6' @?' $'?' +1!)'
3 ' 2I3" / dD' !"+' #8' H&'&,$-' ++&%@-?6' ,('$'!&+6' #,' ,(&,+' '' #1'! -' $+'
2#6' , I E3 HDE!' $8#,&+$ (6' "#' $1")#, L&' $'?' $. +",$"&' #,' R1+" !&' #8' ")&' 5&$!&6' #")&,'
D&HDC3' 3" ED' ")$'' $'(' &9!&2"' ")&' R1+" !&+' #8' ")&' 5&$!&')#-('.' +1!)' 2&! $-'
"2F #4 #%% ++ #'+' $+' $8#,&+$ (6' "#' "$:&' !#.' L$'!&' #8' $'?' 88&'!&' !#%N
CDH 27 (O^ % ""&(' #,' $--&.&(' "#')$4&' @&&'' !#%% ""&(' @?' $'?' +1!)' $22,&'" !&('
O EE #E! 3 ' $@#1,&,6' #,' @?') +' #,')&,' %2-#?&6' '' +1!)' ")&' &-$" #'' "#'
2H3' # D&DHI^ &$!)' #")&,6' #,' #8' ")&' ,&$!)6' < #-$" #'6' #,' &.-&!"' #8' $'?' #8' ")&'
3 # 3"D/D . @- .$" #'+' #*&(' @?' ")&%' "#' &$!)' #")&,6' #,' #8' $'?' T1&+" #'6'
$""&,6' #,') '.' '! (&'"' "#' #,' $, + '.' #1"' #8' ")&' &-$" #'+' 1@N
+ +" '.' @&"*&&'' +1!)' $22,&'" !&(' $@#1,&,+' $'(' ")&' 5&,+#'+' ,&+2&!N
" 4&-?' &'" "-&(' "#' ")&' ,' &,4 !&+' $'(' &4&,?' '$!"%&'"6' &.1-$" #'6'
5,#4 + #'6' 1-&6' #,' ,(&,' '' $'?' +1!)' !"+6' ,('$'!&+6' $'(' ,(&,+'
'' #1'! -' "#' ")&' !#'",$,?' !#'"$ '&(' +)$--' @&' $'(' +')&,&@?' (&!-$,&('
"#' @&' '1--' $'(' 4# (' $'(' #8' '#' &88&!"

, I E3 HDE "2F^ ' '(' "' +')&,&@?' 81,")&,' (&!-$,&(' $'(' &'$!"&(')$"' ")&'
#4' CDH 27 +&4&,$-' R1+" !&+' #8' ")&' 5&$!&')$4 '.' 2&! $-' #%% ++ #'+' $+' $8#,&N
(O O EE #E +$ (' +)$--6' * ") '' ")&' ,&+2&!" 4&' #-#' &+' "#' *) !)' ")&?' +)$--' @&' ,&N
3 ' D&D/H ED' +2&!" 4&-?' $22#' '"&(6')$4&6' &9&,! +&6' $'(' &'>#?' $' +#-&' $'(' &9!-1+ 4&
D&H7 I E FD R1, +(!" #'

L ' L B ' ' (2C

R1, +(!" #'' #4&,6 $'('+)$-- +#-&-?$'(' &9!-1+ 4&-?"$:& !#. ' L$'!& #86 ,'I/ EG H3 #
$-- +1!)' 88&'!&+ #,' $--&.&(' 88&'!&+ $+ -$+" $8#,&+$ (6 $'(' #8 &4&,? OD3ZDD#
+1!)' ,&$!)6< #-$" #'6 #,' &.-&!" #8$'? #8")& $8#,&+$ (' @- .$" #'+6 2CC/D#3 HDG
$'(' #8 &4&,? +1!)' T1&+" #'6 $""&,6 #,') '.'$+ $8#,&+$ (6 $'? $*6 2O I/D/E
1+"#%6 #,' V+$.& '' $'? #8 ")& +$ (' #-#' &+ "# ")& !#'",$,? '' 2#G 3"D /
$'?* +&'#"* ")+"$'('.] 5,#4 (&(' '&4&,")&-&++6 ")$" '#") '.')&,& '' 0C7 6D/E
!#'"$ '&('+)$-- &9"&'('#,' @& !#'+",1&(' "# &9"&'(' "# $@,#.$"& #,' "$:& ,'I/ EG H3 #
$*$? ")& 5#*&,+ @? $*' 4&+"&(' '' ")& 12,&%& #1,"+ #8 &!#,(6 #,' .' IC/DOD
")& 12&, #,' #1,"+ #8 4 - $'(' , % '$- R1+" !& '' $'? #8 ")& +$ (' (I/3E
,&+2&!" 4& #-#' &+ C/DED/FDG

' 5,#4 (&(' $-+#6 $'(' @& '' 81,")&,' &'$!"&(')$" '# $22,&'N CC/D#3 HDG
" !&(' $@#1,&,' +)$--6 @? $'? +1!)' !" #8 ++&%@-?6 ,('$'!&6 2O I/D/E
#,' ,(&,' '' #1'! - $+ $8#,&+$ (6 @& (&!-$,&(' #,' ,&'(&,&(' - $@-& # 3 3 ' OD
8#,' $'(' '' ,&+2&!" #8 $'? 88&'!& @?) %' #,')&,' !#%% ""&(6 #,' E I O5DH3DG
8#,''$'? $1+& #,' 12#'' $'? H,#1'(' #,' 5,&"&9" *)$"+#&4&,6 &9!&2" 3 ' 2 A/ 7 #'
$+)&,&$8"&,' + %&'" #'&(6 "# $'? 5,#-#'.$" #'' #8) + #,')&,' &,%' C23 # /
#8 22,&'" !&+) 26 #,' "# $'? '&*' #,' $(("#'$- 22,&'" !&+) 26 =D#DZ27 .'
#,' "# $'? +1!)' $(("#'$- $@#1,' $+ +)$-- %2#+& 12#'' $'? +1!)' 3"D / CC/D#^
$22,&'" !&(' $@#1,&,' ")& @- .$" #'' #8 *#,: '. '' ")& &,4 !& #,' 3 HDE" C # /
8#,' ")& &'&8 " #8 ")& 5&,+#'' #,' 5&,+#'+ &'" "-&(' "#) + #,')&,' &,N 3 ' O /D 3"2#
4 !&+ 8#,' %#,& ")$'' 8"&&'' &9",$ #1,+ '' ")& *)#-& '' $'? '& V > I/E
E&&:6 @1" &4&,? +1!)' '$!"%&)"> &.1-$" #'6 5,#4 + #'6 1-&6 #,' D&3/2 2O I/
,(&,' +)$-- @& $'(' +)&,&@? (&!-$,&(' '1-- $'(' 4# ($'(' #8 '# # 2#6 @DD]'
&8 &!"] 5,#4 (&(' '&4&,")&-&++6 ")$" $'? +1!)' !" #8 ++&%@-?6 . / 3"D /
,('$'!&6 #,' ,(&,' '' #1'! - $+ $8#,&+$ (' %$? !#'"$ '' 5,#4 + #'+ 0C7 6D/E
8#,' !#%2&-- '.' $'? $22,&'" !&(' $@#1,&,' *)# +)$--6 (1, '.') + #,' D#D. 3
)&,' 22,&'" !&+) 26 * -81--? $@+&'") %+&-8 #,')&,+&-8 8,#%' ")&
&,4 !& #8) + #,')&,' %2-#?&,6 & ")&,' "# +&,4&) + #,')&,' %2-#?&,'
$8"&,' ")& 92 ,$" #'' #8) + #,')&,' 22,&'" !&+) 2 8#,' +# -#'.' $ %&
$+)& #,' +)& +)$--)$4& +# $@+&'"&(') %+&-8 #,')&,+&-8 8,#%' +1!)'
&,4 !&6 #,' "# %$:& $" +8$!" #'' "#) + #,')&,' %2-#?&,' 8#,' ")& #++
+1+"$ '&(' @? +1!)' @+&'!&6 X&9!&2" +# 8$,' $+)& #,' +)& +)$--)$4&
%$(& $" +8$!" #'' 8#,' +1!)' @+&'!&6 & ")&,' #1" #8 +1!)' &9",$ #1,+
$+ $8#,&+$ (6 #,' #")&,* +&6[@1" '&4&,")&-&++ +# ")$" +1!)' &9",$
&,4 !& #,' #%2&'+$" #'' +)$-- '#" @& !#%2&--$@-& $8"&,' ")& 92 ,$N
" #'' #8 &4&'' &$,+ '&9" $8"&,' ")& &,% '$" #'' #8 ")& 22,&'" !&+) 2
#8 +1!)' 22,&'" !&

' 5,#4 (&('$-*$?+6$'('@& '')&,&@?81,")&,'&'$!"&(')$" '& ")&,' CC/D#3 HDG
1'(&,' ")& 5,#4 + #'+ #8") + !"6 '#,' 1'(&,' ")& @- .$" #'+ %2#+&(' 2O I/D/E
@?") + !"6 #,' "# @& %2#+&(' @? $'? !" #8 $'? H&'&,$- ++&%@-?6 # 3 3 ' OD
,('$'!&6 #,' ,(&,' '' #1'! -6 +)$-- $'? $22,&'" !&(' $@#1,&,' @& H 0 CD77DG
!#%2&--&(' #,' !#%2&--$@-& "# -$@#1,' #'' '&9!&2" '' E#,:+ #8 3 ' Z /]' #
&!&++ "? #,' '' 3#%&+" !' &,4 !&+6 #,' '' ")& 5,#"&!" #'' #8 5,#2&,"?6 I#G26E # /
#,' ''"&'('.' #8 $""-&6 '#,'+)$-- $'? $22,&'" !&(' $@#1,&,' @& - $@-& C/DFD#3DG
"# @&) '(&,&(' #,' 2,&4&'"&(' 8,#%' $""&'('.' $'?*)&,& #'' ./ O' 233D#G^
8#,' &- . #1+ E#,+) 26 $") + #,')&,' 8,&& E -- #,' 5-&$+1,&6 @1" +)$-- ' #4 =D7 4 IE
@& $" 81-- @&,"? +# "# (# * ")#1" $'? &"6 3&' $-6 #,' '"&,,12" #'' % /E" C #
*)$"+#&4&, I#G26E

' '(*)&,&$+ " %$? @& &92&(&'" ")$" 5&,+#'+ '' ")& #") '.'
#'("#'' #8 $22,&'" !&(' $@#1,&,+ +)#1-(6 (1, '.'")& #'" '1$'!& '7 8&,&*")
#8 2#6 (7 # 27

2ZE!' O6' Z7 H7' 25P' 5 /D#3 HDG' 2O I/D/E' O26' OD' D&^ D O C3DG' ./ O' /' G E^ \ I27 . DG' . /')9D/32 %7 B 7 ^ 32/6' /' (F7 D/F DDE' 2#G' A/2 I HO EDE

#8' +1!)' ")& ,' 22,&'" !&+) 26')&' &9&%2"&(' 8,#%' ")&' 5&,8#,%$!&' #86' !&,"$ '' 4 -' $'(' -"$,?' &,4 !&+6' $'(' @&' (+C1$- 8 &(' 8,#%')#-('.' !&,"$ '' 4 -' $'(' -"$,?' 88 !&+6' $'(' 8,#%' ")&' '>#?%&''' #8' !&,"$ '] 5#- " !$-' ,$'!) +&+6' K* ") '' ")&' +$ (' #-#' &+6' $'(' @&' &9&%2"&(' 8,#%' @& '.' $,,&+"&(' #,' %2, +#'&(' 8#,' 3 &@"' @&' '' ")&,&8#,&' &'$!"&(6')$"' '#") '.' ' ") +' !" !#'"$ '&(' &9"&'(+' #,' +)$--' @&' !#'+",1&(' "#' &9"&'(' "#' '"&,8&,&' * ")' #,' 2,&4&''' ")&' '$!"%&''' @?' ")&' ,&+2&!" 4&' H#4&,'#,+6' #1'! -+6' $'(' ++&%@- &+6' #,' @?' +1!)' #")&,' -#!$R' -&. +N -$"1,&' $+' $8#,&+$ (' #8' $'?' +1!)' #-#' &+6' #,' @?' +' $>&+"?' '' #1'! -' '' ,&8&,&'!&' "#' +1!)' #8' ")&' +$ (' #-#' &+' $+' $,&' +1@>&!'' "#' ")&' &. +-$" 4&' 1")#, "?' #8' +' $>&+"?' '' #1'! -6' #8' $'?' !"+6' ,('$'!&+6' #,' ,(&,+' '' #1'! -' 8#,' &9&%2" '.' $'?' +1!)' $22,&'N " !&(' $@#1,&,+' $+' $8#,&+$ (6' (1, '.' ")&' #'" '1$'!&' #8' +1!)' ")& ,; 22,&'" !&+) 26' 8,#%' $'?' +1!)' 4 -' #,' -"$,?' &,4 !&' $+' $8#,&+$ (6' #,' 8#,' (+C1$- 8? '.' ")&%' #,' $'?' #8' ")&%' (1, '.' ")&' #'" '1$'!&' #8' $'?' +1!)' 22,&'" !&+) 2+' 8,#%' ")&' '>#?%&''' #,' 3 +!)$,.&' #8' $'?' +1!)' 5#- " !$-' ,$'!) +&' $+' $8#,&+$ (6' #,' 8#,' &9&%2" '.' ")&%' (`8,'.' ")&' #'" '1$'!&' #8' +1!)' 22,&'" !&+) 2+' 8,#%' @& '.' $,,&+"&(' #,' %N 2, +#'&(' 8#,' 3&@"

H3E' C2EEDG' O6' 7 H27 D4 E723 I /DE' Z 3"' E O 72/' O I3' OC/ FDG' #2H3 O D#3E' 3 ' 3" E' H3' 3 ' E I CD/EDGD' 3" E' H3' # OD #4' H #^ . / O DG' O6' > E' B 25DE36' #' (I#H 7

' '(' *)&,&$+' '' *#1-(' @&' (&+ ,$@-&' ")$"' +1!)' #8' ")&' 5,#7 4 + #'+' #8' ") +' !" $+' ,&-$"&' "#' ")&' '"&,'$-' #'!&,'+' #8' ")&' +$ (' ,&8O +2&!" 4&' #-#' &+' +)#1-(' @&' &'$!"&(' '' +1!)' ,&+2&!" 4&' #-#' &+' +#' 8$,' $+' %$?' @&' 2#++ @-&' @?' ")&' 1")#, "?' #8' ")&' +&4&,$- -#!$-' &. +-$"1,&+' #8' +1!)' #-#' &+' ,&+2&!" 4&-?' ' @&' '' ")&,&8#,&' &'$!"&(')$"' '' !$+&' ")&' H#4&,'#,6' #1'! -6' $'(' ++&%@-?' #8' $'?' '&' #,' %#,&' ' +' $>&+"?;+' #-#' &+' $8#,&+$ (' +)$--6' @?' $'?' !" #,' !"+' #8' H&'&,$-' ++&%@-?' 8#,' ")$"' 51 B2#+&' %$(&6' +1@+" "1"&' 8#,' ")&' +&4&,$-' '$!"%&'"+')&,& 'B@&8#,&' !#'"$ '&(6' #,' $'?' #8' ")&%6' $'?' '$!"%&'"+' $!!#%2- +) '.' ")&' +&4&,$-' @>&!"+' '' +1!)')&,& 'B@&8#,&' !#'"$ '&(' '$!"%&'"+' ,&+2&!" 4&-?' !#'"&%2-$"&(' $+' 81--?' $'(' "#' ")&' - :&' 88&!"6' @1'' '' $' $'&,' $'(' #,%' @&'"&,' $($2"&(' "#' ")&' -#!$-' ,!1%+"$'!&+' #8' $'? +1!)' #-#' &+' #,' #-#'?6' $'(' '' !$+&' +' $>&+"?' +)$--6' @?' $'? ,(&,' #,' ,(&,+' "#' @&' @?' %' %$(&6' @?' ")&' (4 !&' #8' +' 5, 4? #1'! -6' !#'8 ,%' $'(' $--#*' $'?' +1!)' !' #,' !"+' #8' ++&%@-?6' $'(+)$--' '' $'(' @?' $'?' +1!)' ,(&,' #,' ,(&,+' '' #1'! -' ,&! "&' $'(' +&'' 8#,")' $' -&'.")' ")&' +&4&,$-' 5,#4 + #'+' $'(' '$!"%&'"+' #8' ") +' 2,&+&'' !' 8#,' *) !)' +1!)' #")&,' '$!"%&'"+' $+' $8#,&+$ (' +)$V)$4&' @&&'' +1@+" "1"&(' @?' $'?' +1!)' !' #,' !"+' #8' H&'&,$-' ++&%@-?6' ")&'' $'(' '' +1!)' $+&' +#' %1!)' $'(' +1!)' 5$,"+' #8' ") +' 2,&+&'' !' $+' +)$-- @&' +#' ,&! "&(' $'(' +&' 8#,")' $' -&'.")' '' $'?' +1!)' ,(&,' #,' ,(&,+' #8' +' $>&+"?' '' #1'! -' +)$--' @&' +1+2&'(&(' $'(' !&$+&' "' @&' #8 $'?' #,!&' #,' 88&!' '' $'?' +1!)' #-#'?' 8,#%' $'(' $8"&,' ")&' ,, 4$- $'(' 5,#!-$%$" #'' ")&,& '' #8' $'?' +1!)' ,(&,' #,' ,(&,+' #8' +' $>&+"? '' #1'! -6' $'(' +)$--' !#'"' '1&' "#' @&' +#' +1+2&'(&(' -#'.' $+' $'?' +1!)' +1@+" "1"&' $'(' '$!"%&'"+' +)$--' !#'"' '1&' ''8#,!&' $'(' 1',&2&$-&(6' $'('#-#'.&,

"D' /D2E I /6' O26' /2 ED' 2#E!' # 3' D&HDDG #4' U' B 77 #E

< ' '(' *)&,&$+6' "#*$,(+' !#%2&'+$" '.' ")&' 5&,+#'+' $"' 2,&+&'' &'" "-&(' "#' ")&' &,4 !&+' #8' ")&' -$4&+' "#' @&' %$'1% ""&(' $'(' +&'' 8,&&' @?' 4 ,"1&' #8' ") +' !" 8#,' ")&' #++' #8' +1!)' &,4 !&+6' +' $>&+"?;+' %#+' (1" 81-' $'(' -#?$-' 1@>&!"+' ")&' #%%#'+' #8' '(' '$'(' E ' '' 5$,- $%&''' $++&%@-&(')$4&' ,&+#-4&(' "#' . 4&' $'(' .,$'' "# +

' ' 0%% B ' ' (2C

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")&'>1+"' $'('&C1 "$@-&' 3 +", @1" #'' #8' ")&' +$ (' 1'(+' $%#'.+"' #,'8#,'
")&' &'&8 "#8' +1!)' +&4&,$-' 5&,+#'+' $+' $8#,&+ $ (6' $'('8#,' ")&'5,#"&!" #''
#8' +1!)' 1'(+6' $'(' 8#,' ")&' 22# '"%&'"' $'(' '(&%' 8 !$" #'' #8'
+1!)' ,1+"&&+' $+' $8#,&+$ (' $'('+1!)' .&'&,$-' 1-&+' *)&'' +#' 8,$%&(6'
$'(' *)&'' $.,&&(' 12#'' @?' ")&' +$ (' #%% ++ #'&,+6' +)$-' @?' ")&%6'
@&' +1@+!, @&(' * ")' ")& ,' ,&+2&!" 4&' $'(+' $'(' &$-+6' $'(' ",$'+% ""&('
"#' ")&' #,('5,&+ (&'"' #8' +' $>&+"?;+' #1'! -6' "#' @&' @?') %' -$ ('
@&8#,&' +' $>&+"?' '' #1'! -' $'(' +#' 8,#%' %&' "#' %&' $+' #8"&''
$+' $'?'81,")&,'.&'&,$-' 1-&+' +)#1-(' @&' +#' 8,$%&(' $'(' $.,&&(' "#' 8#,'
")&'51,2#+&+' $8#,&+$ (' #,'$'?' #8' ")&%

>2F #4' 02GD' 3"D' #\ I / DE!' (0 0 EE #^ D/E' 3 ' ./2OD' 4D#D/2?' = I7DE' . /' 3"D' D\ I 32O7D' * E3/ O13 #' .'3"D' A I#G' 2EE 4#DG' 3 ' D2H"' (7 #6

IH"' = I7DE' 3 ' OD' 72 G' OD. /D' > E' B25DE36' #' (I#H 7

< ' '(' @&' "' 81,")&,'&'$!"&(')$"' ")&' .&'&,$-' 1-&+' "#' @&'
",$'+% ""&(' $+' $8#,&+$ (' "#' ")&' +$ (' #,('5,&+ (&'"' +)$-' @&' 8#,") * ")'
21@- +)&(' '' ")&' ' K ' #''),&&' +&4&,$-' !!$+ #'+' $"' -&$+"6'
"#.&")&,' * ")' $' #" !&' ")$"' $-' 5&,+#'+' '"&,&+"&(' '' #,' $88&!"&(' @?'
$'?'+1!)' .&'&,$-' 1-&+' %$?6' @?' $' %&' "#' @&' '' +1!)' #" !&' - % "&(6'
$22&$-' $.$ '+"' $'?'+1!)' 1-&+' "#' +' $>&+"?' '' #1'! -;' $'(' "'
+)$-' @&' -$*81-' 8#,' ")&' #,(+' $'(' #")&,+' #8' +' $>&+"?;+' 5, 4?'
#1'! -6' #,' 8#,' $'?'),&&' #,'%#,&' #8' ")&%6' @?' $'?'81,")&,' #" !&' #,'
#" !&+' "#' @&' 8#,' ")$"' 51,2#+&' 21@- +)&(' '' ")&' ' K ' "#'
&'-$,.&6' $+' "#' ")&%6' %$?' +&&%6' %&&"6' ")&' %&' 8#,' ,&!& 4 '.'$'?'+1!)'
22&$-+

= I7DE' 3 ' OD' C I O7 E"DG' #' 3"D' #G #' 2dD33D!' Z 3"'2') 3 HD' 37 23' CCD27E' Z 77' OD' /DHD FDG' 242 #E3' 3"D /' E32O7 E"^ 0 D#3

' '(' @&' "' 81,")&,'&'$!"&(')$"' 8' * ") '' ")&' %&' +#' "#'
@&' - % "&(' 8#,' ,&!& 4 '.'+1!)' 22&$-+' $'?'5&,+#'' #,' 5&,+#'+' +)$-'
2,&8&,'$'?'5&" "#'' #8' 22&$-' "#' +' $>&+"?' '' #1'! -' $.$ '+"' $'?'
+1!)' .&'&,$-' 1-&' +#' 21@- +)&(' $+' $8#,&+$ (' '' ")&' ' K ' "'
+)$-' @&' -$*81-' 8#,' +' $>&+"?' '' #1'! -6' #,' 8#,' $'?' #%% ""&&' #8'
5, 4?' #1'! -6' "#')&$,'+1!)' 22&$-6' $'(' "#' !$1+&' #" !&' ")&,&#8' "#'
@&' +&,4&(' 12#'' ")&' +$ (' #%% ++ #'&,+6' *)#' +)$-' ")&,&12#'' 1'(&,N
"$:&' ")&' 3&8&'!&' #8' +1!)' 22&$-' $'(' 12#'')&$, '.'$'?'+1!)' 22&$-'
"' +)$-' @&' -$*81-' 8#,' +' $>&+"?' '' #1'! -' "#' !#'8 ,%' $'(' $' '1-' #,'
"#' ,&+! '(' $'(' (+$--#*' $'?'+1!)' H&'&,$-' 1-&' $+' $8#,&+$ (6' #,' ")&,&N
12#'' "#' $-"&,6' $%&'(6' #,' 4$,?' $'?'+1!)' 1-&' '' +1!)' $' '&,' $+' "#'
+' $>&+"?' %$?' +&&%' >1+"6' #,' "#' ,&% "' ")&' +$%&' "#' ")&' +$ (' #%% +N
+ #'&,+' 8#,' "1,")&,' #'+ (&,$" #'' $'(' &4 + #'

> E' B25DE36' #' (I#H 7 026' "D2/' E I H"' CCD27E!' 2#G' 3"D/D^ I C #' H #. / O' /' G E277 Z' 2#6' 4D#D/2?' = I7D' E ' 2CCD27DG' 242 #E3

' #G

' $ B ' ' (2C ! V

' (' @&' '' 81,")&,' &'$!"&(6)$"' $" ")&' 92 ,$" #'' #8' ")&'
%&' - % "&(' 8#,' ,&!& 4 ' .' +1!)' 22&$-+' $+' $8#,&+$ (' '' +)$--' @&'
-$*81-' 8#,' +' $>&+"?' '' #1'! -' "#' !#'8 ,%' $'(' $--#*6 #,' "#' ,&+! '('
$'(' (+$--#*6 '' ")&' *)#-&' #,' '' 2$,"6 #,' "#' $%&'(6 $-"&,6 #,' 4$,?6 $'?'
+1!)' .&'&,$-' 1-&' #,' 1-&+6 ")#1.)' '#'' +#' $22&$-&(' $.$ '+"6 $+' "#'
+' $>&+"?' %$?' +&&%'>1+"6 #,' "#' ,&% '' +1!)' 1-&+' "#' ")&' +$ (' #%N
% ++ #'&,+' 8#,' 81,")&,' #'+ (&,$" #'' $'(' &4 + #'

#' OED#HD' .'
CCD27!' > E'
B 25DE36' #'
(I#H 7' 026'
H #. / 0!'
/DEH #G!' /'
2 0 D#G' E I H''
= I 7DE

' '(' @&' ''81,")&,' &'$!"&(')$'' *)&'' $'(' +#' #8"&'' $+' $'?' +1!)'
.&'&,$-' 1-&' #,' 1-&+' $+' $8#,&+$ (' +)$--' @?' +' $>&+"?' '' #1'! -'
)$4&' @&&'' !#'8 ,%&(' $'(' $--#*&(6 $'' ,(&,' +)$--' @&' %$(&' @?' +'
$>&+"?' '' #1'! -6 ,&! " ' .' $" -&' .")' $'?' +1!)' 1-&' #,' 1-&+6 * ")'
$'?' -"&,$" #'+' #,' %&'(%&'"+' *) !)' %$?')$4&' @&&'' ")&,& '' %$(&'
$+ $8#,&+$ (' $'(' $' #2?' #8' &4&,?' +1!)' ,(&,' '' #1'! -' +)$--' @&'
(1-?' !&," 8 &(' @?' ")&' #,(' 5,&+ (&''' #8' +' $>&+"?;+' #1'! -' 8#,' ")&'
%&' @& ' .' "#' ")&' #,(' .)')$'!&--#,' #,' D&&2&,' #8' ")&' H,&$''
&$-6 #,' "#' ")&' $+"&,' #8' ")&' #--+6 8#,' ")&' %&' @& ' .6 $'(' +)$--' @&'
(1-?' ',#--&(' $%#' .' ")&' &!#,(+' #8")&' .)' #1,'' #8')$'!&,?6 $'('
+)$--' ")&,&' ,&%$ '' $'(' @&' #8' &!#,(

= I 7DE' Z "D#'
H #. / 0 DG' 06'
> E' B 25DE36'
E" 27' OD'
/DH 3DG' #' 3"D'
H #. / 0 23 /6'
' /GD/' #'
(I#H 7!' 2#G'
#/ 77DG' #'
("2#HD/6

' '(' @&' ''81,")&,' &'$!"&(6)$'' ''+)$--' @&' -$*81-6 @?' $'?' 1-&+'
+#' "#' @&' 8,$%&(6 21@- +)&(6 !#'8 ,%&(6 $--#*&(6 $'(' ',#--&(' $+' $8#,&B'
+$ (6 "#' ,&4#:&6 $%&'(6 $-"&,6 $'(' $.$ '' ,&'&*6 $+' !!$+ #'' %$?'
,&C1 ,&6 $'(' $+' %$?' @&' ")#1.)'' >1+"6 $'?' 8#,%&,' #,' 2,&!&(' .' 1-&'
#,' 1-&+

= I 7DE' E '
#/ 77DG' 0 26'
$%&'(&(7''

' '(' @&' ''81,")&,' &'$!"&(')$'' &4&,?' +1!)' .&'&,$-' 1-&' $+'
$8#,&+$ (6 *)&'' +#' ',#--&(' $+' $8#,&+$ (6 +)$--' @&' #8'")&' +$%&' <$- ("?6
#,!&6 < ,"1&6 $'(' 8&&!"' $+' 8'")&' +$%&')$(' @&&'' %$(&' $'(' &'$!"&('
@?' +' $>&+"?6 @?' $'(' * ")' ")&' (4 !&' $'(' #'+&''' #8' 5$,- $%&'"]
5,#4 (&(' '&4&,")&-&++6 ")$'' '#' +1!)' 1-&' +)$--' @&' '' $'?* +&' ,&21.B'
$''' "#' #,' $'' 4$, $'!&' * ")' ") +' !'' #,' $'?' 5$,'' ")&,&#86 #,' * ")' ")&'
$*+' $'(' V+$.&+' '' 8#,!&' '' ")&' +&4&,$-' #-#' &+' ,&+2&!" 4&-?' "#'
*) !)' +1!)' 1-&+' %$?' ,&-$"&6 +#' 8$,' $+' $'?' +1!)' $*+' #,' V+$.&+' %$?'
'#'' @&' ,&21.'$''' "#' #,' $''4$, $'!&' * ")' ")&' 5,#4 + #'+' #8' ") +' !"

= I 7DE' Z "D#'
H #. / 0 DG'
2#G' #/ 77DG'
E" 27' OD' .'
3"D' E2 0 D'
27 G 36' 2E' .'
D#2H3DG' 06'
+2/7 2 0 D#3

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' ")&' +$ (' .&'&,$-' 1-&+6
)&'' +#' 8,$%&(6 !#'8 ,%&(6 $--#&(6 $'(' ',#--&(' $+' $8#,&+$ (6 +)$--' @&'
#@+&,4&(' $'(' 8#--#*&(' @?' ")&' +$ (' #%% ++ #'&,+6 $'(' +)$--' @&'
@ '(' '.' 12#'' ")&%' '' ")&' 81,")&,' 9&!1" #'' #8' ")&' +$ (' #%% ++ #'6 ' ++#'&,^'
$'(' '' ")&' 9&,! +&' #8' ")&' 5#*&,+' $'(' 1")#, " &+')&,&@?' !#%% '''&('
"#' ")&%6 $'(' +)$--' '' $--' $+&+' @&' "$:&'6 #@+&,4&(6 $'(' 8#--#*&(' $+'
")&' 1-&+' 8#,' ")&' 3&! + #'' #8' $'(' (>1(!$" #'' 12#'' $--' -$ %+'
*) !)' %$?' @&' 2,&&&,,&(' "#' ")&%' @?' $'?' 5&,+#'' #,' 5&,+#'+')$4 ' .' #,'
!-$ % ' .' "#')$4&' $'?' '"&,&+'' '' ")&' +$ (' #%2&'+$" #'' 1'(' #,'
'' $'?' 5$,'' ")&,&#8

= I 7DE' E '
#/ 77DG' E" 27'
' # '
' #' 02] #4%
3"D /' Z2/GE!'

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' $'?' 5&,+#'')$4 ' .' #,'
!-$ % ' .' "#')$4&')$(' $'?' .)"6 "-&6 #,' '"&,&+'' '' #,' "#6 #,' $'?' '"&,&+"&('
#,".$.&6 R1(.%&'"6)$,.&6 '!1%@,$'!&6 #,' ' &'' ' 7$'1%''"&(A
-$4&' #,' -$4&+' +#' "#' @&' %$'1% '''&(' $+' ' ' ' 5 * ' ' >4 '% '
+1!)' ")& ,' $'1% ++ #'6 +)$--' $'(' %$?' 2,&&&,' +1!)' -$ %+' @&8#,&' '$?

+D/E #E'
C/D.D/
")&' (72 0E' OD. /D

3"D' (O O E^
E #D/E!'
Z" '2/D' 3 '
O2]D' = I7DE'
. /' 3"D' (#^
GIH3' .'277
+/ HDDG #4E'
I#GD/' 3"D'
(O O EE #

")&' +$ (' #%% ++ #'&,+' $'(' 8#,' &'+1, '.' &")#(6' &.1-$, "?6' $'('
3 +2$"!)' '' ")&' #(&' #8' 2,&8&,, '.' $'(' #8' 2,#!&&('.' 12#'' +1!)'
-$ %+6' ")&' +$ (' #%% ++ #'&,+' +)$--' $'(' $,&')&,&@?' $1")#, L&(' @?'
.&'&,$-' 1-&+6' "#' @&' 8,$%&(' $'(' 21@- +)&(6' !#'8 ,%&(6' $--#*&(6' $'('
',#--&(' $+' $8#,&+$ (6' "#' 2,&+!, @&' ")&' #,%' $'(' $''&,' #8' 5,#!&&(N
'.' "#' @&' #@+&,4&(' @?' $'?' -$ %$''' #,' -$ %$'"+' 2,&8&,, '.' $'?' +1!)'
-$ %+6' $'(' "#' $1")#, L&' ")&' ++ +"$'' #%% ++ #'&,+' +#' "#' @&' $2N
2# '"&(' '")&' +$ (' +&4&,$-' #-#' &+' "#' ,&!& 4&' $'(' ,&2#," 12#'' ")&'
+$%&' #,' $'?' #8' ")&%' ''+1!)' $''&,' $'(' #,%' $'(' 1'8 &,' + !'' &.1N
-$" #'+' $+' "#' ")&' #%% ++ #'&,+' + ' "#' @#' $22# '"&(' @?' "> +' $>&+"?' $+'
$8#,&+$ (' +)$--' +&&%' %&&"6' $'(' "#' 2,&+!, @&' ")&' $''&,6' ")&' %&'
#,' %&+6' ")&' 5-$!&' #,' 5-$!&+6' $'(' ")&' #,%' #,' #,%+' 2' *) !)'
#" !&+' #8' +1!)' -$ %+' +)$--' @&'' 21@- +)&(' 8#,' .&'&,$-' '8#,%$" #'6'
#,' &+2&! $--?' !#%%1' !$"&(' "#' #,' +&,4&(' 12#'' $'?' 2&,+#'' #,' 5&,N
+#'+' '"&,&+"&(' ")&,& '' #,' $88&!"&(' ")&,&@?6' $'(' "#' 2,&+!, @&' ")&' #,%'
$'(' $''&,' #8' 5,#!&&('.' "#' @&' #@+&,4&(' 12#'' ")&' 2,#+&!1" #'' #8'
+1!)' -$ %+6' #,' '' %$: '.' $'?' 22#+ " #'' "#' ")#' +$%&6' $'(' "#' %$:&'
$--' +1!)' &.1-$" #'+' $+' "#' ")&%' %$?' +&&%' @&+" $($2"&(' 8#,' 2,#%#" '.'
&")#(6' !#'#%?6' $'(' 3 +2$"!)' '' ")&' '4&+" .$" #'' #8' +1!)' -$ %+6'
$'(' ,&+2&!" '.' ")&' 4 (&'!&' "#' @&' "$:&'' $'(' $(% ""&(' 8#,' #,' $.$ '+''
")&' +$%&6' $'(' ,&+2&!" '.' ")&' $''&,' $'(' #,%' #8' $(>1(!$" '.' ")&,&N
12#'6' $'(' #")&,* +&' -#*&4&,' ,&+2&!" '.' ")&' &")#(6' #,%6' $'('
$''&,' #8' 5,#!&&('.' "#' @&' #@+&,4&(' &")&,' @?' ")&%' ")&' +$ (' ++ +N
"$''' #%% ++ #'&,+6' #,' @?' ")&' 5$,"&+' "#' $'?' 5,#!&&('.+' @&8#,&'
")&%6' ")&,' .&'"+' 2,' E "'&++&+6' $'(' *) !)' 1-&+' +)$--' 8,#%' %&'
"#' %&' @&' -$@-&' "#' @&' $%&'(&(6' $-"&,&(6' 4$, &(6' #,' ,&'&*&(' $+'
!!$+ #'' %$?' ,&C1 ,&6' ''+1!)' $''&,' $+' +')&,& 'B@&8#,&' (,&!"&(

(O O EE #^
D/E' 3 '2G5IG^
H23D' #' 277
(72 OE' C/D^
.D//DG' 3 '
3"DO
CCD27' O26'
OD' O2GD'
242 #E3'
G5IG H23 #

< ' '(' @&' '"81,")&,' &'$!"&(')$'"")&' +$ (' #%% ++ #'&,+' +)$--'
2,#!&&(6' '' ")&' $''&,' "#' @&' 2,&+!, @&(' @?' $'?' +1!)' .&'&,$-'
1-&+' $+' -$+'' $8#,&+$ (6' "#' 'C1 ,&' '"#' $'(' $(>1(!$"&' V2#'' $'?' +V&)'
-$ %+' $+' %$?' @&' +#' 2,&8&,,&(' "#")&%6' $'(' +)$--' 12#'' &$!)' +1!)' -$ %'
%$:&' ")&,' (>1(!$" #'' $'(' *$,(' ''+1!)' $''&,' $'(' #!'' $+' +)$--'
@&' 2,&+!, @&(' @?' $'?' +1!)' -$+"B%&'" #'&(' .&'&,$-' 1-&+'' $'(' 8' V'?'
5&,+#'' '"&,&+"&(' '' #,' $88&!"&(' @?' $'?' +1!)' (>1(!$" #'' #,' *$,('
+)$--' @&' (++$" +8 &(' ")&,&* ")6' ''+)$--' @&' -$*81-' 8#,' +1!)' 5&,+#'' "#'
$22&$-' ")&,&8,#%' "#' +' $>&+"?' '' #1''! -6' $'(' #" !&' #8' $'?' +1!)'
22&$-' +)$--' @&' +&,4&(' 12#'' ")&' +$ (' #%% ++ #'&,+6' *)#' +)$--' ")&,&N
12#'' 1'(&,"$:&' ")&' 3&8&'!&' ")&,&#8' $'(' ''+)$--' @&' !#%2&"&''"#'
+' $>&+"?' '' #1''! -' "#' %$:&' $'(' &+"$@- +)' $--' +1!)' 1-&+' $'('
&.1-$" #'+' $+' "#' +' $>&+"?' +)$--' +&&%' %&&"' ,&+2&!" '.' ")&' %&'
$'(' $''&,' #8' 2,&8&,, '.' $'(' 2,#!&&('.' 12#'' +1!)' 22&$-+6' $'('
,&+2&!" '.' ")&' #1,+&' "#' @&' #@+&,4&(' '' (&8&'('.' ")&' +$%&6' *) !)'
1-&+' +)$--')&' +#' 8,$%&(' $+' "#' 2,#%#"&6' $+' 8$,' $+' %$?' @&' !#'+ +"&''
* ")' R1+" !&6' $--' 2,$!" !$@-&' !#'#%?' $'(' 3 +2$"!)' '' ")&' 2,#!&&('.'

> E' B2'
DE36' #
(I#H 7' O26'
O2]D' = I7DE'
. /' 3"D' = D4I '
523 # .'EIH'"
CCD27E

#' 2GFD/ED'
(72 OE' 2#6'
(72 O2#3' #^
3D/DE3DG' #
3"D' G5IG^
H23 #' O26'
I#GD/32]D'
3E' *D.D#HD

12#'' ")&' 3&! + #'' ")&,&#8' $'(' '' $+&+' '' *) !)' $'?' *# #,' %#,&'
5&,+#'' +' +)$--')$4&' 2,&8&,,&(' @&8#,&' ")&' +$ (' #%% ++ #'&,+' $(4&,+&' #,'
#22#+ '.' -$ %+6' $'(' '' *) !)' $'?' #,' &")&,' #8' +1!)' 5&,+#'' +' +)$--' @&'
'"&,&+"&(' "#' +1+"$ '' ")&' (>1(!$" #'' #,' *$,(' #8' +1!)' #%% +N
+ #'&,+' ")&,&12#'6' ")&'' $'(' '' &4&,?' +1!)' $+' +&' '' +)$--' @&' -$*81-' 8#,'
$'?' 5&,+#'' #,' 5&,+#'+' '' '"&,&+"&(' "#' 1'(&,"$:&' ")&' 3&8&'!&' #8' $'?'
+1!)' 22&$-' ''-&1' $'(' '+"&$(' #8' ")&' +$ (' #%% ++ #'&,+

ʼ $ B ʼ ,Q ʼ (2C

2 ʼ '(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(ʼ)$"ʼ "ʼ +)$--ʼ @&ʼ -$*81-ʼ 8#,ʼ +ʼ > Eʼ B2^
$>&+"?ʼ 'ʼ #1'! -6ʼ 12#'ʼ)&$, '.ʼ $'?ʼ +1!)ʼ 22&$-ʼ $+ʼ $8#,&+$ (6ʼ & ")&,ʼ 5DE36ʼ #
"#ʼ !#'8 ,%ʼ $'(ʼ $--#*ʼ #,ʼ "#ʼ ,&4&,+&ʼ #,ʼ "#ʼ $%&'(ʼ #,ʼ $-"&,ʼ $'?ʼ +1!)ʼ (I#H 7ʼ 026ʼ
(>1(!$" #'ʼ #,ʼ *$,(ʼ $+ʼ "#ʼ +ʼ $>&+"?ʼ 'ʼ #1'! -ʼ +)$--ʼ +&&%ʼ 8 "6ʼ H #. /0ʼ /ʼ
#,ʼ "#ʼ ,&% "ʼ $'?ʼ +1!)ʼ (>1(!$" #'ʼ $'(ʼ *$,(ʼ "#ʼ ")&ʼ +$ (ʼ #%% +N G E277 Z!ʼ / ʼ
+ #'&,+ʼ 8#,ʼ 81,")&,ʼ #'+ (&,$" #'ʼ $'(ʼ &4 + #'6ʼ #,ʼ 8#,ʼ ")&ʼ (% ++ #'ʼ 273D/ʼ /ʼ /D3# 3ʼ
#8ʼ 81,")&,ʼ 4 (&'!&ʼ > @1"ʼ "ʼ +)$--ʼ '#"ʼ @&ʼ -$*81-ʼ 8#,ʼ +ʼ $>&+"?ʼ 'ʼ G5 I G H23 #ʼ
#1'! -6ʼ 12#'ʼ ")&ʼ)&$, '.ʼ #8ʼ $'?ʼ +1!)ʼ 22&$-6ʼ "#ʼ $(% "ʼ $'?ʼ '&*ʼ 2CCD27DGʼ
4 (&'!&ʼ *) !)ʼ *$+ʼ '#"ʼ $(% ""&(ʼ @?ʼ #,ʼ "&'(&,&(ʼ "#ʼ ")&ʼ +$ (ʼ #%% +N 242 #E3
+ #'&,+ʼ @&8#,&ʼ ")&ʼ %$: '.ʼ #8ʼ +1!)ʼ ")& ,ʼ (>1(!$" #'ʼ $'(ʼ *$,(

< ʼ '(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(ʼ)$"ʼ ")&ʼ +&4&,$-ʼ (>1(!$" #'+ʼ $-'7$'4
$'(ʼ *$,(+ʼ #8ʼ ")&ʼ +$ (ʼ #%% ++ #'&,+6ʼ 1'-&++ʼ (1-?ʼ $22&$-&(ʼ 8,#%ʼ 22&$-6ʼ 3"Dʼ
*") 'ʼ ")&ʼ ,&+2&!" 4&ʼ %&+ʼ "#ʼ @&ʼ -% "&(ʼ @?ʼ +ʼ $>&+"?ʼ 'ʼ #1'!8 Bʼ Z2/Gʼ .ʼ3"Dʼ
8#,ʼ ")$"ʼ 51,2#+&6ʼ +)$--ʼ @&ʼ 8 '$-ʼ $'(ʼ !#'!-1+ 4&ʼ $'(ʼ @ '('.ʼ 12#'ʼ $--ʼ
5&,+#'+ʼ '"&,&+"&(ʼ ")&,& 'ʼ #,ʼ $88&!"&(ʼ ")&,&@?ʼ $'(ʼ ")$"ʼ ")&ʼ 3&! + #'+ʼ
#8ʼ +ʼ $>&+"?ʼ 'ʼ #1'! -ʼ 12#'ʼ $'?ʼ +1!)ʼ 22&$-ʼ +)$--ʼ 'ʼ - :&ʼ $''&,ʼ
@&ʼ 8 '$-6ʼ @ '('.6ʼ $'(ʼ !#'!-1+ 4&

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#%2&'+$" #'ʼ ")&ʼ 9&!1" #'ʼ #8ʼ ") +ʼ !"6ʼ $'(ʼ 8#,ʼ (+!)$,. '.ʼ +1!)ʼ
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#,(' #8' ")&' $'#,' #8' *) !)' ")&' $'(+' *&,&' 5$,!&-6' ")&' 5,#!&8&(B' '.+' '' *) !)' $,&' '#*' 2&'('.6' #,' 12#'' $' E, '' #8' 3&!&'' *) !)' $'' $'?' %&' $8"&,' ")&' 2$++ '.' #8' ") +' !" %$?' @&' @,#1.)'' @?' ")&' #,(' #8' ")&' +$ (' $'#,6' @&' ,&4&,+&(' $+' "#' $'?' 5&,+#'' &9!&2"' ")&' #,(' #8' ")&' +$ (' $'#,' $'(' ")&' #1,'' +)$--' #,(&,' +1!)' '&' "#' @&' 4$!$"&(' #'-?' $+' "#' ")&' #,(' #8' ")&' +$ (' $'#,' $'(' &4&,?' +1!)' '&' *) !)' %$?' @&' ,&4&,+&(' $+' "#' ")&' #,(' #8' ")&' +$ (' $'#,' 12#'' +1!)' E, '' #8' 3&!&'' $+' $8#,&+$ (' +)$--' +" --' ,&%$ '' $+' .##(' $'(' 4$- (' $.$ '+" 6$'(' $+' @ '('.' 12#'' ")&'6 #'1+#,+'' ")&,&#86' $'(' $--' 5&,+#'+' !-$ % '.' 1'(&,' ")&%6' $+' +1!)' '&' *#1-('))4&' @&&'' 8' ")&' +$%&')$(' '#'' @&&'' ,&4&,+&(' @?' +1!)' E, '' #8' 3&!&'' $+' $8#,&+$ (' ' $'(' '#' #%,$#'' &!#4&,?6' $-N ,&$(?' +18"&,&(' '' $' +12&, #,' #1,'' #8' $'(+' #8' ")&' &'1,&' #8' '! &'' 3&%&+'&' *) !)')$")' 2#'' @&&'' ,&4&,+&(6' $'(' '#' #%,$#' &!#4&,?')&,&$8"&,' "#' @&' +188&,&(' #8' $'(+' #8' ")$'' &'1,&66' +)$--6' 12#'' $' E, '' #8' 3&!&'' $-,&$(?' @,#1.)'' @?' ")&' #,(' #8' ")&' $'#,' #8' *) !)' ")&' $'(+' *&,&' 5$,!&-6' ")&' 5,#!&&(' '.+' '' *) !)' $,&' '#*' 2&'('.6' #,' 12#'' $' E, '' #8' 3&!&'' *) !)' $'' $'?' %&' $8"&,' ")&' 2$++ '.' #8' ") +' !" %$?' @&' @,#1.)'' @?' ")&' #,(' #8' ")&' +$ (' $'#,6' @&' ,&4&,+&(' $+' "#' $'?' 5&,+#'' &9!&2"' ")&' #,(' #8' ")&' +$ (' $'#,' $'(' ")&' #1,'' +)$--' #,(&,' +1!)' &!#4&,?' "#' @&' 4$!$"&(' #'-?' $+' "#' ")&' #,(' #8' ")&' +$ (' $'#,' $'(' &4&,?' +1!)' &!#4&,?' *) !)' ,$$?' @&' ,&4&,+&(' $+' "#' ")&' #,(' #8' ")&' +$ (' $'#,' 12#'' +1!)' E, '' #8' 3&!&'' $+' $8#,&+$ (' +)$--' +" --' ,&%$ '' $+' .##(' $'(' 4$- (' $.$ '+'' $'(' $+' @ '('.' 12#'' ")&' <#1!)&&+' ")&,&' '6' $'(' $--' 5&,+#'+6' !-$ % '.' 1'(&,' ")&%6' $+' +1)' &N !#4&,?' *#1-(')$4&' @&&'' 8' ")&' +$%&')$(' '#'' @&&'' ,&4&,+&(' @?' +V!)' E, '' #8' 3&!&'' $+' $8#,&+$ (

A #DE 2#G =DH FD/ DE . 2#GE # #H D#3 *D^ ODE#D' 7DF DG' / EI..D/DG' # 3"D' B2# / (I/3! 2.3D/ 3"D/ A #DE 2#G' =D^ H FD/ DE # 2 EICD/ / (I/3! E"27 OD' 2E F27 G' 2E .'3"D' D#I/D' "2G # 3 ODD# H"2#4DG

<' '(' @&' '' 81,")&,' &'$!"&(6')$'' 8' $'' $'?' '$&' @&8#,&' #,' $8"&,' ")&' 2$++ '.' #8' ") +' !'' $' '&' #,' #%%#'' &!#4&,?' +)$--')$4&' @&&'' -&4 &(' #,' +188&,&(6' #,' +)$--' @&' -&4 &(' #,' +188&,&(' '' $' +12&, #,' #1,"A' #8' $'(+' #8' ")&' &'1,&' #8' '! &'' 3&%&+'&6' $'(' +1@+&C1]&' "-?" ' "-&' -&4? '.' #,' +188&, '.' ")&,&#8' $' '&' #,' #%%#'' &!#4&,?]' +)$ ')$4&' @&&'' #,' +)$--' @&' -&4 &(' #,' +188&,&(' #8' ")&' +$%&' $'(+' '' ")&' #1,'' #8' ")&' #,(' #8' ")&' $'#,' #8' *) !)' ")&' $'(+')$(' @&&'' 2,&4 #1+-?' 5$,!&-6' $'(' ")&' '&' #,' #%%#'' &!#4&,?' -&4 &(' #,' +188&,&(' '' +1!)' +12&, #,' #1,'' +)$--' '#'')$4&' @&&'' ,&4&,+&(' 2,&4 #1+-?' "#' ")&' -&4? V.' #8' ")&' '&' #,' ")&' +188&, '.' #8' ")&' #%%#'' &!#4&,?' '' ")&' #,(;+' #1,"6' ")&'' $'(' '' &4&,?' +1!)' $+&' ")&' '&' #,' #%%#'' &!#4&,?' -&4 &(' #,' +188&,&(' '' ")&' #,(;+' #1,'' +)$--6' '#"* ")+"$'('.' ")&' -"&,$" #'' #,')$' .&' #8' ")&' &'1,&' @?' ")&' '&' #,' #%%#'' &!#4&,?' 2,&4 #1+-?' -&4 &(' #,' +188&,&(' '' ")&' +12&, #,' #1,"6' @&' $+' .##(6' 4$- (' $'(' @ '('.' $+' ")&' +$%&' *#1-(')$4&' @&&'' 8' ")&' &'1,&')$(' '#'' @&&)' $-"&,&(' #,' !)$' .&(' $'(' ")$'' '' &4&,?' #")&,' $+&' *)&,&' $'?' '&' #,' #%%#'' &!#4&,?' +)$--' $'' $'?' %&' @&8#,&' ")&' 2$++ '.' #8' ") +' !'')$4&' @&&'' -&4 &(' #,' +188&,&(' '' $' #1,'' *)#+&' R1, +(!" #'' (#&+')#'' &9"&'(' "#' ")&' $'(+' #8' *) !)' +1!)' '&' #,' &!#4&,?' +)$--')$4&' @&&'' -&4 &(' #,' +188&,&(6' +1!)' '&' #,' &!#4&,?' +)$--' '#'' @&' 2<$- (' 8#' !#'+&C1&'!&' #8' ")$4 '.' @&&'' -&4 &(' #,' +188&,&(' '' +1!)' #1,"6' $'(' +1!)' #1,"' +)$--' @&' (&&%&(' $' #1,"' #8' +188 ! &'' R1, +(!" 2$8#,' $--' ")&' 51,2#+&+' #8' +1!)' '&' #,' &!#4&,?' $'(' '' &4&,?' #")&,' $+&' *)&,&' 5&,+#'+' +)$--')$4&' $++1%&(' "#')#-(' #1,"+ '' *)-!-' '&+' #,' #%%#'' &!#4&,' &+')$4&' @&&'' -&4 &(' #,' +188&,&(6' $'(' +1!)' #1,"+' +)$--' @&' 1'-$*81-' #,')&-(' * ")#1" (1&' 1")#, "?6' ")&' '&+' #,' #%%#'' &!#4&, &+' *) !)' $'' $'?' %&' @&8#,&' ")&' 2$++ '.' #8' ") +

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#1,"+' #8' +188 ! &'" R1, +(!" #' ' 8#,' $--' "7&' 51,2#+&+' #8' +1!)' '&+' #,'
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< ' '(' @&' "81,")&,' &'$!"&(6)$" ' ' &4&,?' $+&' ' ' *) !)' $" $'?' &'1,&' #8'
%&6' & ")&,' @&8#,&' #,' $8"&,' ")&' 2$++ '.' #8' ") +' !"6' ")&' &'1,&' #,' 8 ! &'" 3&B'
'! &'" 3&%&+'&')$+' @&&' ' #,' +)$--' @&' +1+2&'(&(' #,' (&+",#?&(' @?' ")&' .1+-&'(&(7&,'
-&4? '.' #8' $' '&6' #,' ")&' +188&, '.' #8' $' #%%#' ' &!#4&,?B#8' $'(+' (&+",#?&(' @?'
#8' ")$" &'1,&' ' ' $' +12&, #,' #1,"6' $'(' ")&' #,(' #8' ")&' $'#,' '&' #!' &B'
#8' *) !)' ")&' $'(+' $" ")&' %&' #8' -&4? '.' +1!)' '&' #,' +188&, '.' ' ` 4&,? " $'
+1!)' &!#4&,?' *&,&' 5$,!&-' +)$--' '#" ,&4&,+&' ")&' +$%&' @&8#,&' ")&' !#@," ,&B'
,+" 3$?' #8' & '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B8#1,6' +"#,&(' '
$'(' +)$--' '#" @?' $'?' $*' ' ' 8#,!&' #' ' ")&' 8 ,+" 3$?' #8' ") +' &++ #' ' $+&+' '
#8' 5$,- $%&' " @&' @$,,&(' #8') +' .)" "#' ,&4&,+&' ")&' +$%&6' +1!)' $'(+6'
2,#4 (&(' * ") ' ' ")&' -$+" *&'"?' &$,+' %%&($"&-?' 2,&!&('.' ")&' 2-B(7#7")&7'
,+" 3$?' #8' & ' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B8#1,' B2# /' E"27'
")&' .)"+' #8' ")&' #,(' #8' ")&' $'#,' #8' *) !)' ")&?' +)$--')$4&' @&&' ') * @&&' '
5$,!&-' +)$--' ' ' $'?' $' '&,')$4&' @&&' ' $!:'#*-&(.&(' #,' ,&!#. ' L&(' ,7##7' L&('
$+' "#' ")&' +$%&' $'(+6' +)$--6' 8,#%' ")&' +$ (' ,+" 3$?' #8' & ' 7,^
'&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B8#1,6' $.$ ' ' @&!#%&' 5$,!&-' #8'
")&' +$ (' $'#,6' $'(' @&' +1@>&!" "#' ")&' +$%&' &, #"+6' &'"+6' $'('
&,4 !&+' $+' ")&?' *#1-(')$4&' @&&' ' +1@>&!" "#' 8' +1!)' '&' #,' &!#4&,?'
)$(' '#" @&&' ' -&4 &(' #,' +188&,&(' $'(' '#' E , "#8' 3&!& " 8#,B' ")&' &N
4&,+$-' #8' $'?' '&' #,' #%%#' ' &!#4&,?' +)$--' @&' @,#1.)" $8"&,' ")&'
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3" D' 3&&(' (&!-$, '.' ")&' V+&+' #8' $'?' '&' $-,&$(?' -&4 &(' #,')&,&$8"&,' F27 G' Z 3" I3'
"#' @&' -&4 &(6' ")$" ")&,&' +' ' ")&' '(&'"1,&+6' &!#,(6' #,' $'?' #8' ")&' OD#GOD#3'
5,#!&&('.+' #8' +1!)' '&' $'?' ,,#,' ' ")&' $%&' #8' ")&' #'1+#,' #8'
#'1+&&' #8' +1!)' '&6' #,' $'?' +(&+!, 2" #' #,' % ++ #' ' #8' $'(+'
'"&'(&(' "#')$4&' @&&' ' 2$++&(' @?' +1!)' '&6' ")&' ' $'(' ' ' &4&,?' +1!)
$+&' ")&' '&6' * ")#1" $'?' %&'(%&'" #8' ")&' '(&'"1,&+6' &!#,(6' #,'
5,#!&&('.+' ' ' *) !)' +1!)' ,,#,6' +(&+!, 2" #'6' #,' % ++ #' ' +)$--'
)$4&' #!!1,,&(6' +)$--' @&' $+' .##(' $'(' 4$- (' $+' ")&' +$%&' *#1-(')$4&'
@&&'6' $'(' +)$--' @&')&-(' "#')$4&' 2$++&(' $--' ")&' $'(+' '"&'(&(' "#')$4&'
@&&' ' 2$++&(' ")&,&@?6' ' ' ")&' +$%&' $' '&,' $+' " *#1-(')$4&' (#'&' 8'
")&,&')$(' @&&' ' '#' +1!)' ,,#,6' +(&+!, 2" #'6' #,' % ++ #'

< ' '(' @&' "81,")&,' &'$!"&(6')$" 8' " +)$--' @&' 22,&'"6' 8,#%' =DH FD/ DE'
")&' 3&&(' %$: '.' ")&' &'$'" "#' ")&' E , " #8' ' ",?' #,' #")&,' E , " 8#,' O2GD' F27 G'
+188&, '.' $' #%%#' ' &!#4&,?' $-,&$(?' +188&,&(' #,')&,&$8"&,' "#' @&' Z 3" I3'
+188&,&(6' ")$" ")&,&' +' ' ")&' 9&%2- 8 !$" #'6' &!#,(6' #,' $'?' #8' ")&' OD#GOD#3!
5,#!&&('.+' #8' +1!)' &!#4&,?' $'?' ,,#,' ' ")&' $%&' #8' ")&' &'$'"6'
3&%$'($'"6' #,' &#1!)&&' ' ' +1!)' &!#4&,?6' #,' $'?' +(&+!, 2" #' ' #,'
% ++ #' ' #8' $'(+' '"&'(&(' "#')$4&' @&&' ' 2$++&(' @?' +1!)' &!#4&,?6'
")&' ' $'(' ' ' &4&,?' +1!)' $+&' ")&' &!#4&,?6' * ")#1" $'?' %&'(%&'"
#8' ")&' 9&%2- 8 !$" #'6' &!#,(6' #,' 5,#!&&('.+' ' ' *) !)' +1!)' ,,#,6'
+(&+!, 2" #'6' #,' % ++ #' ' +)$--')$4&' #!!1,,&(6' +)$--' @&' $+' .##(' $'('
4$- (' $+' ")&' +$%&' *#1-(')$4&' @&&'6' $'(' +)$--' @&')&-(' "#')$4&' 2$++&('
$--' ")&' $'(+' '"&'(&(' "#')$4&' @&&' ' 2$++&(' ")&,&@?6' ' ' ")&' +$%&

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$''&,'$+ " *#1-(')$4& (#'& 8 ")&,&')$(' @&&'' '# +1!)' ,,#,6 +N
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2F #4 , I / E' ' 5,#4 (&(' $- * $?+6 $' (' @& " 81,")&,' &'$!"&(')$" '#") '.' "
G H3 # # ")+ !" #'"$ '&(' +)$-- -&++&" #,' "$:& $*$? "- & R1, +(!" #'' #8 $'?
#/ @GDG . / 7#1," "# $%&'(' $'? '& #,' #,$'"#" &!#4&,?6 #,' $'? 5,#!&&('.'
' ")&,& '6 " $+&+ '#" 2,#4 (&(' 8#,' @? ") + !"

=DH FD/ DE ' '(' @& " 81,")&,' &'$!" (')$" '# #%%#'' &!#4&,? $-,&$(?
O2GD F27 G +188&,&(' #,')&,&$8"&,' "# @& +188&,&(' +)$-- @& '4$- (' " !#'+&C1&'!& #8
HD/32 # ")& &.-&!" "# ',#- " (1& %& $ $,.$ " $'(' $-& 21,2#," '.' "#
(2EDE Z"D/D %$:& ")& &'$'" "# ")& E, " #8 '",? #,' #")&,' E, " 8#,' +188&, '.'
2/42 # 2#G +1!)' &!#4&,?6 2,#4 (&(' +1!)' &!#4&,? *#1-(')$4& @&&'' 4$- (' 8")&
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=DH FD/ DE 6 ' '(' @& " 81,")&,' &'$!"&(')$" ""# #%%#'' &!#4&,?
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H #ED\ ID#HD !#'+&C1&'!& #8 $'? 5&,+#'' " *)#%' $" +"$"& $" $*' *$+ #1"N
.'3"D/D # 3 +"$'('.')$4 '.' #% ""&(' "# %$:& ")& &'$'" "# ")& E, " #8 '",?
OD #4 C/ CD/ #,' #")&,' E, " 8#,' +188&, '.' +1!)' &!#4&,?6 2,#4 (&(' ")& 5&,+#''
D#2#3E 3 ' *)# *$+ ")& *'&,' #8 #,')$(' 5#*&,' "# (+2#+& #8 $'' +"$"& "
3"D @/ 3E .' 2#++&++ #'6 '#" @& '.' -&++ ")$'' $" +"$"& 8#,' $ 8& #,' 4&+ " ")&
#3/6 O2GD *)#-& #8 ")& &'"+ $'(' 5,#8 "+ #8 ")& $'(+ " *) !)' +1!)' +"$"& $"
F27 G # HD/^ $*' *$+ #1"+"$'('.6 #,' ")& 1-" %$"& 1,2-1+ #8 +V!)' &'"+ $'('
32 # (2EDE 5,#8 "+ $8"&,' 5$?%&'" #8 $'?)$,.&+ ")&,&#2"6 $'(' *)&")&,' $'?
1,2-1+ $8"&,' 5$?%&'" #8 +1!)')$,.&+ +)$-- $!"1$--? ,&%$ " #,' '#"6
+)$--6 *") " ")& %& - % "&(' 8#,' %$: '.' ")& &'$'" "# ")& E, " 8#,'
+188&, '.' +1!)' &!#4&,?6)$4& !#'4&?&(' #,' (+2#+&(' #8 +1!)' +"$"& "
2#++&++ #'' "# ")& &'$'" "# +1!)' E, " ' $'(' $" +"$"& Y@$ ' @& (&&%&('
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12#'' *) !)' $ &'" + ,&+4 4&(6 #,' $'? &,%' #8 &$,$ 12#O *) !)' '#
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. #DE 2#G @&&'' *)#--? ,&4&,+&(6 +1!)' '& #,' &!#4&,? +)$-- '#" @& ,&'(&,&('
=DH FD/ DE 4$- (' @? ")+ !" $'(' *)&,& $'? '& #,' #%%#'' &!#4&,? +)$--
E"27 # 3 OD @&8#,& ")& 2$++ '.' #8 ")+ !")$4& @&&'' ,&4&,+&(' $+ "# +#%& #'-? #8
O2GD F27 G ")& 5$,"&+ ")&,&"#6 #,' $+ "# +#%& #'-? #8 ")& $'(+ ")&,& " !#%2, +&(6
O63" E H3 +1!)' '& #,' &!#4&,? +)$-- '#" @& ,&'(&,&(' 4$- (' @? ")+ !" +# 8$,'
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*#1-(')$4& @&&'' @$,,&(' @? $'? '& #,' #%%#'' &!#4&,? 8 4$- ('
+)$-- @&8#,& ")& 2$++ '.' #8 ")+ !")$4&)$(' $'? 3&$- '.+ *")")2
$'(+ !#%2, +&(' " +1!)' '& #,' &!#4&,? #" ")& $")#8 ")& +$%&
@& '.' '4$- (6 +1!)' '& #,' &!#4&,? +)$-- '#" @& ,&'(&,&(' 4$- (' @?
")+ !" $'(' ")+ !" +)$-- '#" ,&'(&,' 4$- (' $'? '& #,' #%%#''
&!#4&,? $+ "# $'(+ #8 *) !)' $'? 5&,+#'' +)$-- $" ")& %& #8 ")&
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")& '& #,' #%%#'' &!#4&,?6 8 4$- (6 *#1-(')$4& @$,,&(6 '#,'
$'? '& #,' #%%#'' &!#4&,? *) !)6 @&8#,& ")& 2$++ '.' #8 ")+
!"6 $'? #1," #8 !#%2&"&'" R1, +(!" #'' +)$--)$4& ,&81+&(',"#
$%&'(' '#,' +)$-- ") + !" 2,&>1(!&6 #,' $8&!" $'? 5,#!&&('.+ $7
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$*' #,' '' C1 "?6' 2&' (' .' $" ")&' %&' #8' ")&' 2$++ ' .' #8' ") +' !"6'
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@&"*&&'' ")&' 5$,"?' !-$ % ' .' 1' (&,' +1!)' '&' ,' &!#4&,?' $' (' ")&'
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&+1-'' #8' +1!)' 5,#!&&(' .+' +)$--' @&' "#' '4$- ($"&' ")&' +$%&6' +)$--' '#''
@&' ,&' (&,&(' 4$- (' @?' ") +' !" ' $' (' 8' +1!)' 5,#!&&(' .+' +)$--' $@$"&'
#,' @&!#%&' (&8&!" 4&' '' !#' +&C1&' !&' #8' ")&' 3&$")' #8' ")&' 5$,"?'
!-$ % ' .' 1' (&,' #,' $(4&,+&-?' "#' +1!)' '&' #,' &!#4&,?6' $' ?' 5&,+#''
*)# @1'' 8#,' ") +' !" *#1-(')$4&' $' .)'' #8'6 !" #'' #,' 1'' @?'
,&$+#'' #8' ")&' '4$- ("?' #8' +1!)' '&' #,' &!#4&,?' +)$--' ,&"$ '' +1!)'
.)"6' +#' ")$'')&' !#%%&' !&' 5,#!&&(' .+' * ") '' 9' $-&' ($,' #' ")+'
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' '(' @&' '' 81,")&,' &'$!"&(6')$'' $8"&,' ")&') ,"?B8 ,+'' 3$?' #8'
' *" ' '&' ")#1+$' (' & .)'')1' (,&(' $' (' ") ,"?B"),&&' ")&' &!#,(+'
#8' $--' '&+' $' (' #%%#'' &!#4&, &+' -&4 &(' $' (' +188&,&(' '' +'
$>&+"?;+' #1,'' #8' #%%#'' 5-&$+' $'' / * ' $' (' $--' ")&' 5,#N
!&&(' .+' ")&,&#86' +)$--' @&' (&2#+ "&(' '' +1!)' 5-$!&+' $' (' :&2'' @?' +1!)'
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' $' (' $--' ")&' 5,#!&&(' .+' ")&,&#86' +)$--' @&' (&2#+ "&(' ''
+1!)' 5-$!&+' $' (' :&2'' @?' +1!)' 5&,+#' +' $+' +' $>&+"?;+' R1+" !&+' #8'
++ L&' 8#,' ")&' #1'"?' 5$-$" '&' #8' ' 8#,' ")&' %&' @& ' .' +)$--'
8,#%' %&' "#' %&' #,(&,' #,' (,&!" ' $' (' ")&' &!#,(+' #8' $--' '&+'
$' (' #%%#'' &!#4&, &+' -&4 &(' $' (' +188&,&(' '' ")&' #1,'' #8' 2-&$+' #8'
")&' #1'"?' 5$-$" '&' #8' ' * ' $' (' $--' ")&' 5,#!&&(' .+' ")&,&#86' +)$--'
@&' (&2#+ "&(' '' +1!)' 5-$!&+' $' (' :&2'' @?' +1!)' 5&,+#' +' $+' ")&' +$ ('
#1,'' #8' 5-&$+' +)$--' 8,#%' %&' "#' %&' #,(&,' #,' (,&!" ' $' (' '' ")&'
%&$'" %&' ")&' +$ (' &!#,(+' $' (' 5,#!&&(' .+' +)$--' ,&%$ '' '' ")&' +$%&'
5-$!&+' ,&+2&!" 4&-?' *)&,&' ")&?' $,&' '#*' (&2#+ "&(6' $' (' @&' :&2'' @?'
")&' ,&+2&!" 4&' 5&,+#' +' *)#' *#1-(')$4&' !#'" '1&(' &'" "-&(' "#' ")&'
1+"#(?' ")&,&#8' 8' ") +' !")$(' '#" @&&'' 2$++&(' $' (' *) -&' ")&' +$ ('
&!#,(+' $' (' 5,#!&&(' .+' ,&+2&!" 4&-?' +)$--' @&' :&2'' @?' +1!)' 2&,+#' +'
,&+2&!" 4&-?' &$,!)&+' %$?' @&' %$(&' $' (' 9",$!"+' $' (' #2 &+#@"$ '&('
$+')&,&"#8#,&6' $' (' #'' 2$?' ' .' ")&' $!!1+"#%&(' &&+' $' (' *)&'' $' ?'
#8' ")&' &!#,(+' $' (' 5,#!&&(' .+' +)$--6' @?' ")&' ,(&,' #8' ")&' #1,'' #,'
R1+" !&+')$4 ' .' ")&' #'",#-' #4&,' ")&' +$%&6' @&' :&2'' @?' $' ?' #")&,'
5&,+#' 6' ")&' 6' +#' 8$,' $+' ,&-$"&+' "#' ")&' &!#,(+' $' (' 5,#!&&(' .+' ''
")&' 1+"#(?' #8' +1!)' #")&,' 5&,+#' 6' &$,!)&+' %$?' @&' %$(&' $' (' 9N
",$!"+' #,' #2 &+' #@"$ '&(' $'' +1!)' %&+' $' (' #'' 2$?' ' .' +1!)' &&+' $+'
+)$--' 8,#%' %&' "#' %&' @&' #,(&,(' @?' ")&' #1,'' #,' R1+" !&+')$4 ' .'
")&' #'",#-' #4&,' ")&' +$%&' $' (' ")&' 9",$!"+' #,' #2 &+' +#' #@"$ '&('
+)$--' @&' $+' 4 -$@-&' '' 4 (&' !&' $+' ")&?' *#1-(')$4&' @&&'' 8' #@"$ '&('
8,#%' ")&' 5&,+#'' *)#+&' 31"?' '' *#1-(')$4&' @&&'' "#')$4&' %$(&' $' ('
(&- 4&,&(' #1'' ")&' +$%&' 8' ") +' !")$(' '#" @&&'' 2$++&(

<' '(' @&' '' 81,")&,' &'$!"&(')$'' $--' E$,,$'" &+' #8' $' (+' E323DE' 2 7!'
<) !)' $8"&,' ")&') ,"?B8 ,+'' 3$?' #8' ' *" ' '&' ")#1+$' (' & .)''
)1' (,&(' $' (' ") ,"?B"),&&' +)$--' @&' %$(&' #,' &'"&,&(' '"#' @?' $' ?'
&'$'' '' $ -' ")&,&#8' +)$--' @&' $@+#-1"&-?' 4#' ($.$ '+'' ")&' ++1&' ''
$ -6' $' (' $--' 5&,+#' +' K*)#+&' +"$"&+' $,&' "#' "$:&' &88&!'' $8"&,' ")&'
3&"&,% '$" #'' #,' '' (&8&$+$' !&' #8' ")&' +"$"&' $ -

<' '(

E' 3 ' 3"D'
=DH /GE' .'
A #DE' 2#G'
=DH FD/ DE' 5'
3"D' (I/3E' .'
(O O #
+7D2E' 23'
@DE3 O #E3D/'
2#G' 2#H2E' '!
3D/!' 2#G' 3"D'
(I/3' .'
+7D2E' 23'
*I/"2O!'
2.3D/' 3"D'
' '' .
*DH' Q

E323DE' 2 7!'
2#G' E323DE'
D&CDH32#3'
3"D/D #!' #'
7 #4D/' O2/'
/2O7D' O6'
@2//2#36

Q L ; * B (2C

+ ZD/! 2.3D/ 3"D ,E3 . #8 2#G D#' 32 7DG # ADD 0C7D /. / E2F #4 "D ,7 4" E . HD/32 # +D/^ E #E

< '(@& " 81,")&, &'$!"&(6)$" $8"&, ")&) ,"?B8 ,+" 3$? #8 ' *" '& ")#1+$'(& .)")1'(,&($'(") ,"?B"),&& &4&,? $!"1$- #8 &'$'" " $ i6 *)&")&, " 5#++&++ #'6 &%$ '(&,6 #'" '.&'!?6 #, ")&,* +&6 +)$--)$4& 81-- 5#*&, "# (+2#+& #8 8#, $" +"$"& " && %2-& $@+#-1"&6 8#, $'? -&++ +"$"&6")& $'(+ &'"$ -&(6 $+ $.$ '+" 5&,+#'+ !-$ % '. ")& $'(+ &'"$ -&(@? 8#, !& #8 $'? +"$"& $ - *) !) +)$-- @& 4&+"&(" #, % .)" @& !-$ %&(@?6 #, *) !) @1" 8#, +#%& 2,&4 #1+ !" *21-( )$4& @&&" 4&+"&(" #, % .)")$4& @&&" !-$ %&(@?6 ")& 5&,+#" %$: '. ")& 3 +2#+ " #'6 $" ")& %& #87) + %$: '. ")& +$%&6 $'($-+# $+ $.$ 2+" $ - 5&,+#'+6 '!-1('. ")& D '.;+ %2+" 9!&--&'" $>&+"?6 + & ,+ $'(1!!&++#,+6 *)#+& +"$"&+ $,& "# "$:& &88&!" $8"&, ")& 3&"&,% '$" #" #, " (&8&$+$'!& #8 $'? +1!) +"$"& $ - $4 '. $-*$?+ ")& .)"+ #8 $-- 5&,+#'+ " ,&+2&!" #8 +"$"&+ 2, #, "# ")& +"$"& $ - " ,&+2&!" #8 *) !) +1!) 3 +2#+ " #" +)$-- @& %$(&6 $'(")& .)"+ #8 $-- #")&, 5&,+#'+6 &9!&2" ")#+& $.$ '+" *)#%6 +1!) 3 +2#+ " #" Y @? ") + !" $1")#, L&("# @& %$(&

+ ZD/ . * EC E 3 # # 3 3 'OD D&D/H EDG O6 @ OD# D^ #2#3E # 2 7 D& +/ F E #D / ! I#GD/ / D&HDC3 Z 3" EED#3

< 5,#4 (&($-*$?+6 $'(@& " 81,")&, &*$!"&(>)$" *)&,&6 1'(&, $'? &"-&%&'" %$(& @&8#,& ")& 2$++ '. #8 ") + !"6 $'? E#%$" +)$-- @& &'$'" " $ - #8 $'(+ * ") " ")& 58#4 + #'+ #8 $" !" 2$++&(" ")& -&4&'") &$, #8 ")& & . " #8 + $>&+"? D '.) ")& &4&'")6 '" "1-&(* " /) " ")& 5#*&, #8 3 +2#+ " #")&,& 'B@&8#,& !#'"$ '&($+ "# +1!) $'(+ +)$-- '#" @& &9&,! +&(@?)&, &9!&2" * ") +1!) ++&'" $+6 8 ") + !")$('#" @&&" 2$++&(6 *#1-(6 1'(&, ")& 5,#4 + #'+ #8 ")& +$ (!" #8 D '.) ")& &4&'")6)$4& ,&'(&,(4$- ($ '& #, #%%#" &!#4&,? -&4 &(#, +188&,&(@?)&, #8 +1!) $'(+

&HDC3 2E 3 2#GE # D337D O D#3E OD. /D 3" E H3! 3"D H3 / /DCD27DG

< 5,#4 (&($-*$?+6 $'(@& " 81,")&, &'$!"&( )$"6 &9!&2" $+ "# $'(+ !#%2, +&(" $'? &"-&%&'" %$(& @&8#,& ")7 2$++ '. #8 ") + !"6 ")& +$ (!" #8 ")& -&4&'") &$, #8 ")& & .V #8 + $>&+"? D '.) ")& &4&'") +)$-- @& $'(")& +$%& +)&,&@? ,&2&$-&(

"D + ZD/ . * EC ^ E 3 # # 3 3 D5H3D#G 3 HD/32 # D^ #2#3E # 2 7

< 5 ,#4 (&($-*$?+6 $'(@& " 81,")&, &'$!"&(6)$" ")& 5#*&, #8 3 +2#+ " #")&,& 'B@&8#,& !#'"$ '&(+)$-- '#" &9"&'("# &N '$'"+ #8 +"$"&+ $ - *)#6 @? $" !" 2$++&(" ")&) ,"?B8#1,") $'( ) ,"?B8 8") &$,+ #8 ")& & . #8 + $>&+"? D '.) ")& .)")6 '" "1-&(* " #$ 0 #, @? $'? #")&, !"6 $,& ,&+",$ '&(8,#%6 @$,, '. ")&, +"$"&+ $ -6 #, "# & '$'"+ $ - $8"&, 5#++ @ - "? #8 ++1& &9" '!"

+ ZD/! 2.3D/ 3"D E3 . * DH Q ! 3 'D#72/4D 2ED ADDE N E2F #4 3"D = 4"3E . HD/32 # +D/^ E #E

'(@& " 81,")&, &'$!"&( )$" $8"&, ")&) ,"?B8 ,+" 3$? #8 ' *" '& ")#1+$'(& .)")1'(,&($'(") ,"?B"),&&6 &4&,? $+& *) !) $" +"$"& $ - $'? $'(+ +)$--)$4& @&&" @$,,&($'(!#'4&,"&('"# $ $+& &&6 & ")&, @&8#,& #, #" #, $8"&, ")$" 3$?6 ")& 5&,+#" *)#6 8 +1!) +"$"& $ -)$('#" @&&" @$,,&(6 *#1-( )$4& @&&" $!"1$- &'$'" " $ - #8 ")& +$%& $'(+6 +)$--)$4& 81-- 5#*&, "# (+2#+& #8 +1!) $'(+ $+ $.$ '+" $-- 5&,+#'+6 '!-1('. ")& D '.;+ %#+" 9!&--&'" $>&+"?6 + & ,+ $'(1!!&++#,+6 *)#+& +"$"&+ $,&

/ ; B ʹ ʹ (2C ʹ

$,&ʹ "#ʹ "$:&ʹ &88&!"ʹ $8"&,ʹ ")&ʹ 3&"&,% '$" #'ʹ #,ʹ 'ʹ (&8&$+$'!&ʹ #8ʹ ")&ʹ $+&ʹ &&ʹ '"#ʹ *) !)ʹ ")&ʹ +"$"&ʹ $-ʹ+)$--ʹ)$4&ʹ @&&'ʹ !#'4&,"&(6ʹ +#ʹ $+ʹ "#ʹ&'-$,.&ʹ ")&ʹ $+&ʹ &&ʹ '"#ʹ $ʹ &&ʹ %2-&ʹ $@+#-1"&ʹ +$4 '.ʹ $-*$?+ʹ ")&ʹ .)"+ʹ #8ʹ $--ʹ 5&,+#'+ʹ 'ʹ ,&+2&!"ʹ #8ʹ +"$"&+ʹ 2, #,ʹ "#ʹ ")&ʹ +"$"&ʹ $-ʹ *) !)ʹ +)$--ʹ)$4&ʹ @&&'ʹ !#'4&,"&(ʹ '"#ʹ $ʹ $+&ʹ &&6ʹ $'(ʹ")&ʹ .)"+ʹ #8ʹ $--ʹ #")&,ʹ 5&,+#'+6ʹ &9!&2"ʹ ")#+&6ʹ $.$ '+"ʹ *)#%ʹ +1!)ʹ 3 +2#+ " #'ʹ +ʹ @?ʹ ") +ʹ !"ʹ $1")#, L&(ʹ "#ʹ @&ʹ %$(&

6 ʹ 5,#4 (&(ʹ $-*$?+6ʹ $'(ʹ @&ʹ "ʹ 81,")&,ʹ &'$!"&(6ʹ)$"ʹ '#") '.ʹ 'ʹ ")+ʹ !"ʹ !#'"$ '&(ʹ +)$--ʹ &'$@-&ʹ $'?ʹ 5&,+#'ʹ "#ʹ (+2#+&ʹ #8ʹ $'?6ʹ $'(+ʹ &'"$ -&(ʹ 'ʹ ,&+2&!"ʹ #8ʹ $'?ʹ &92&!"$'ʹ '"&,&+"ʹ *) !)ʹ)&ʹ %$?ʹ)$4&ʹ $+ʹ ++1&ʹ ')&, "$@-&ʹ "#ʹ $'?ʹ +"$"&ʹ $-ʹ ")&,& ' EEID' ')&B 322H DE' ;'

ʹ 5,#4 (&(ʹ $-*$?+6ʹ $'(ʹ @&ʹ "ʹ 81,")&,ʹ &'$!"&(ʹ)$"ʹ 8ʹ$ʹ &'$'"ʹ 'ʹ $-ʹ#8ʹ $'(+ʹ+)$--ʹ %$:&ʹ $ʹ 3 +2#+ " #'ʹ#8ʹ")&ʹ +$%&6ʹ 1'(&,ʹ ") +ʹ !"6ʹ @?ʹ *$?ʹ#8ʹ #,".$.&6ʹ #,ʹ 8#,ʹ $'?ʹ#")&,ʹ - % "&(ʹ 51,2#+&6ʹ ")&'ʹ $'(ʹ 'ʹ +1!)ʹ $+&ʹ +1!)ʹ 3 +2#+ " #'ʹ +)$--6ʹ "#ʹ ")&ʹ 9"&'ʹ#8ʹ")&ʹ +"$"&ʹ ")&,&@?6ʹ !,&$"&(6ʹ @&ʹ $'ʹ $@+#-1"&ʹ $,ʹ 'ʹ C1 "?ʹ $+ʹ *&--ʹ $+ʹ $"ʹ $*ʹ "#ʹ $--ʹ 5&,+#'+ʹ $+ʹ $.$ '+"ʹ *)#%ʹ +1!)ʹ 3 +2#+ " #'ʹ +ʹ @?ʹ ") +ʹ !"ʹ $1")#, L&(ʹ "#ʹ @&ʹ %$(&6ʹ '#"* ")+"$'('.ʹ $'?ʹ '"&'"#'ʹ "#ʹ ")&ʹ !#'",$,?ʹ %$?ʹ @&ʹ &9N 2,&++&(ʹ #,ʹ %2-&(ʹ 'ʹ ")&ʹ 3&&(ʹ @?ʹ *) !)ʹ ")&ʹ 3 +2#+ " #'ʹ %$?ʹ @&ʹ &88&!"&(] 5,#4 (&(ʹ $-*$?+6ʹ ")$"ʹ 8ʹ ")&ʹ +"$"&ʹ !,&$"&(ʹ @?ʹ +1!)ʹ 3 +N 2#+ " #'ʹ +)$--ʹ @&ʹ #'-?ʹ $'ʹ +"$"&ʹ 2#1,ʹ $1",&ʹ 4 &6ʹ #,ʹ 8#,ʹ &$,+ʹ $@N +#-1"&ʹ #,ʹ (&"&,% '$@-&6ʹ #,ʹ 86ʹ @?ʹ $ʹ 3 +2#+ " #'ʹ 1'(&,ʹ ") +ʹ !"ʹ @?ʹ $ʹ &'$'"ʹ 'ʹ $-ʹ#8ʹ $'(+6ʹ $'ʹ '"&,&+"6ʹ)$,.&6ʹ &'6ʹ #,ʹ '!1%@,$'!&ʹ +)$--ʹ @&ʹ !)&$"&(ʹ * ")#1"ʹ $ʹ &,%ʹ #8ʹ &$,+ʹ $@+#-1"&ʹ #,ʹ (&"&,% '$@-&6ʹ #,ʹ $'?ʹ .,&$"&,ʹ +"$"&6ʹ 8#,ʹ +&!1, '.ʹ #,ʹ ,$+ '.ʹ ")&ʹ +$%&6ʹ ")&'ʹ +1()ʹ 3 +N 2#+ " #'ʹ +)$--ʹ 'ʹ C1 "?ʹ @&ʹ $ʹ $,ʹ #'-?ʹ +#ʹ 8$,ʹ $+ʹ %$?ʹ @&ʹ '&!&++$,?ʹ "#ʹ .4&ʹ 81--ʹ 88&!"ʹ "#ʹ ")&ʹ #,".$.&6ʹ #,ʹ "#ʹ +1!)ʹ #")&,ʹ - % "&(ʹ 51,2#+&6ʹ #,ʹ "#ʹ +1!)ʹ '"&,&+"6ʹ &'6ʹ)$,.&6ʹ #,ʹ '!1%@,$'!&6ʹ '#"* ")+"$'('.ʹ $'?ʹ '"&'"#'ʹ "#ʹ ")&ʹ !#'",$,?ʹ %$?ʹ @&ʹ &92,&++&(ʹ #,ʹ %2-&(ʹ 'ʹ ")&ʹ 3&&(ʹ @?ʹ *) !)ʹ ")&ʹ 3 +2#+ " #'ʹ %$?ʹ @&ʹ &88&!"&(&3D#3' .'3"D' E323D' H/DO^ 23DG' O6' 2' D372#3' #' 2 7' O6' Z26' .' B /3424D!' /' . /' 2#6' 3"D/' 7 O 3DG' +I/C ED

ʹ '(ʹ @&ʹ "ʹ 81,")&,ʹ &'$!"&(ʹ)$"ʹ 8ʹ $"ʹ ")&ʹ %&ʹ E)&'ʹ ")&,&ʹ +)$--ʹ @&ʹ $ʹ &'$'"ʹ 'ʹ $-ʹ#8ʹ $'(+ʹ1'(&,ʹ $ʹ &""-&%&'"6ʹ ")&,&ʹ +)$--ʹ @&ʹ +1@+ +" '.ʹ 'ʹ ")&ʹ +$%&ʹ $'(+ʹ #,ʹ $'?ʹ #8ʹ ")&%6ʹ 1'(&,ʹ ")&ʹ +$%&ʹ &""-&N %&'"6ʹ $'?ʹ +"$"&ʹ 8#,ʹ &$,+ʹ (&"&,% '$@-&ʹ #'ʹ ")&ʹ (,#22 '.ʹ #8ʹ $ʹ 8&ʹ #,ʹ 4&+6ʹ #,ʹ $'?ʹ .,&$"&,ʹ +"$"&ʹ X'#"ʹ @& '.ʹ $'ʹ +"$"&ʹ ʹ &$,+[6ʹ 2, #,ʹ "#ʹ ")&ʹ +"$"&ʹ $-6ʹ ")&'ʹ ")&ʹ 5&,+#'ʹ *)#ʹ +)$--ʹ @&ʹ ")&ʹ *'&,ʹ #8ʹ ")&ʹ 2, #,ʹ +"$"&6ʹ #,ʹ ")&ʹ 8 ,+"ʹ #8ʹ +1!)ʹ 2, #,ʹ +"$"&+ʹ 8ʹ %#,&ʹ ")$'ʹ '&6ʹ ")&'ʹ +1@+ +" '.ʹ 1'(&,ʹ ")&ʹ +$%&ʹ &""-&%&'"6ʹ #,ʹ *)#ʹ *#1-(ʹ)$4&ʹ @&&'ʹ +#6ʹ 8ʹ '#ʹ $@+#-1"&ʹ 3 +2#+ " #'ʹ ")&,&#8ʹ)$(ʹ @&&'ʹ %$(&6ʹ X")&ʹ 8 ,+"ʹ #8ʹ +1!)ʹ 2, #,ʹ +"$"&+6ʹ 8ʹ %#,&ʹ ")$'ʹ '&6ʹ @& '.ʹ 8#,ʹ $--ʹ ")&ʹ 51,2#+&+ʹ #8ʹ ") +ʹ !"ʹ (&&%&(ʹ ")&ʹ 2, #,ʹ +"$"&6[ʹ +)$--ʹ @&ʹ ")&ʹ 5,#"&!"#,ʹ#8ʹ")&ʹ &""-&%&'"ʹ +#ʹ 8$,ʹ $+ʹ ,&.$,(+ʹ ")&ʹ $'(+ʹ 'ʹ *) !)ʹ +1!)ʹ 2, #,ʹ +"$"&ʹ +)$--ʹ @&ʹ +1@+ +" '.6ʹ $'(ʹ+)$--ʹ8#,ʹ $--ʹ ")&ʹ 51,2#+&+ʹ #8ʹ ") +ʹ !"ʹ @&ʹ (&&%&(ʹ ")&ʹ *'&,ʹ #8ʹ +1!)ʹ 2, #,ʹ +"$"&6ʹ $-")#1.)ʹ ")&ʹ +$%&ʹ %$?ʹ)$4&ʹ @&&'ʹ !)$,.&(ʹ #,ʹ '!1%@&,&(ʹ &")&,ʹ @?ʹ ")&ʹ *%&,ʹ ")&,&#8ʹ #,ʹ @?ʹ ")&ʹ &""-#,6ʹ #,ʹ #")&,*+&ʹ)#*+#&4&,6ʹ $'(ʹ $-")#1.)ʹ ")&ʹ *)#-&ʹ #8ʹ ")&ʹ &'"+ʹ $'(ʹ 5,#8"+ʹ @&ʹ &9)$1+"&(ʹ #,ʹ ,&C1 ,&(ʹ 8#,ʹ ")&ʹ 5$?%&'"ʹ #8ʹ ")&ʹ)$,.&+ʹ $'(ʹ '!1%@,$'!&+ʹ #'ʹ +1!)ʹ 2, #,ʹ +"$"&6ʹ $'(ʹ $-")#1.)ʹ +1!)ʹ 2, #,ʹ +"$"&ʹ %$?ʹ)$4&ʹ @&&'ʹ $@+#-1"&-?ʹ (+2#+&(ʹ #8ʹ @?ʹ ")&ʹ *'&,ʹ ")&,&#86ʹ #,ʹ @?ʹ #,ʹ 'ʹ !#'+&C1&'!&ʹ #8ʹ ")&ʹ $':,12"!?ʹ #,ʹ '+#-4&'!?ʹ #8ʹ +1!) "D' ' Z#D/' .'3"D' . /E3' D& E3 #4' E323D' I#GD/' 2' D337D O D#3!' C/ /' 3 ' 2#' E323D' 2 7' I#GD/' 3"D' E2O D' D337D^ O D#3!' 3 ' OD' 3"D' +/ 3DD3 /' .'3"D' D337D^ O D#3

VU ' ' ' B ' ' (2C

+1!)' * '&,6 #,' @?$'?#")&,' !" #,' 3&8$1-" #8+1!)' * '&,' $'(' ")$" $"' +"$"&' @? ")&' 1,"&+?6 "' ,&+2&!" #8 ")&' +"$"&' $-6 #,' #8 $'? 2, #,' +"$"&' !,&$"&(' @? ")&' +$%&' &""-&%&'"6 +)$--' @&' (&&%&(' $ 2, #,' +"$"&' 1'(&,' ")&' +$%&' &""-&%&'" * ") "' ")&' &$' '.' #8 ") +' -$1+&'] $'(' ")$" $"' +"$"&' @? *$? #8 ,&+1-" '.' V+&' #,' ,1+" "# #,' 8#,' ")&' &""-#,' +)$--' @&' (&&%&(' $"' +"$"&' 1'(&,' ")&' +$%&' &""-&%&'" * ") "' ")&' &$' '.' #8 ") +' -$1+&

2H"' .' Z '
'Z#D/E .'2
C/ /' E323D'
3 ' OD 3"D E 7D
+/ 3DH3 /' 2E
3 ' " E "2/D

' 5,#4 (&(' $-*$?+6 $'(' @&' " 81,")&,' &'$!"&(6)$" *)&,&' 5&,+#'+' +)$--' @&' * '&,+6 1'(&,' $ &""-&%&'" * ") ' -7)& &$' '.' #8 ") +' !"6 #8 $ 2, #,' +"$"&6 ")&' +#-&' * '&,' #8 *) !)' +"$"&6 8 ")&,&')$(' @&&'' #'-?' '&6 *#1-(' "' ,&+2&!" ")&,&#8)$4&' @&&'' ")&' 5,#"&!"#,' #8 +1!)' &""-&%&'"6 &$!)' #8 +1!)' 5&,+#'+6 "' ,&+2&!" #8 +1!)' 1'(4 (&(')$,&' $+')&' !#1-(' (+2#+&' #86 +)$--' 8#,' $--' ")&' 51,2#+&+' #8 ") +' !")&' (&&%&(' ")&' * '&,' #8 $ 2, #,' +"$"&6 $'(' +)$--6 "' &9!-1+ #'' #8 ")&' #")&,' #,' #")&,+' #8 ")&%6 @&' ")&' +#-&' 5,#"&!"#,' #8 +1!)' &""-&%&'" "# ")&' 9"&'" #8 +1!)' 1'(4 (&(')$,&

@"D/D 2
02//DG @ ^
02# 27 #D
E"27 OD 3"D
+/ 3DH3 /'
2#G Z"D/D
E"D 2#G "D/
>IEO2#G 3 ^
4D3"D/'E7 27
OD +/ 3DH3 /

< ' 5,#4 (&(' $-*$?+6 $'(' @&' " 81,")&,' &'$!"&(')$" *)&,&' $ %$,, &(' E#%$"' *#1-(6 8 + '.-&6 @&' ")&' 5,#"&!"#,' #8 $ &""-&%&'" "' ,&+2&!" #8 $ 2, #,' +"$"&6 *) !)' Z'#" ")&,&@? +&""-&(6 #,' $.,&&(' #,' (,&!"&(' "# @&' +&""-&(6 "#)&,' +&2$,$"&' ED ' +)&' $'(')&,' 1+@$'(' "#.&")&,' +)$--' "' ,&+2&!" #8 +1!)' +"$"&' @&' ")&' 5,2"&!"#,' #8 +1!)' &""-&%&'"6 $'(' +)$--' @&' (&&%&(' '&' * '&,' @1" 8 +1!)' 2, #,' +"$"&' +)$--' @? +1!)' &""-&%&'")$4&' @&&'' +&""-&(6 #,' $.,&&(' #,' (,&!"&(' "# @&' +&""-&(6 "#)&,' +&2$,$"&' V+&6 ")&'' $'(' "' EIH" $+&' +)&' $-#'&' +)$--' "' ,&+2&!" #8 +1!)' +"$"&' @&' ")&' 5,#"&!"#,' #8 +1!)' &""-&%&'"

E 3 ' E323DE
H #. /ODG /'
/DE3 /DG O6
D337D O D#3

< ' 5,#4 (&(' $-*$?+6 $'(' @&' " 81,")&,' &'$!"&(6)$"6 &9!&2" "' ")&' $+&' #8 $ &$+&')&,& 'B$8"&,' 2,#4 (&(' 8#,6 *)&,&' $"' +"$"&' +)$--' @&' -% "&(' @? $ &""-&%&'" @? *$? #8 #'8 ,%$" #'6 #,' *)&,&' ")&' &""-&%&'" +)$--' %&,&-?')$4&' ")&' 8 &!" #8 ,&+"#, '.' $"' +"$"&6 "' &")&,' #8 ")#+&' $+&' +1!)' +"$"&' +)$--' 8#,' ")&' 51,2#+&+' #8 ") +' !"6 +#' 8$,' $+' ,&.$,(+' ")&' 5,#"&!"#,' #8 ")&' &""-&%&'"6 @&' (&&%&(' $"' +"$"&' +1@+ +" '.' 1'(&,' +1!)' &""-&%&'"

E 3 ' D2EDE
23D% %
/2D#3 % A

< ' 5,#4 (&(' $-*$?+6 $'(' @&' " 81,")&,' &'$!"&(')$" *)&,&' $ D337D $" $ &'" +)$--' @&' !,&$"&(' #,' !#'8 ,%&(' @? $ &""-&%&'"6 ")&' 5&,+#'' "' *)#+&' $4#1,' +1!)' &$+&' +)$--' @&' !,&$"&(' #,' H #. /O DG3' +)$--' '#" "' ,&+2&!" ")&,&#8 @&' ")&' 5,#"&!"#,' #8 +1! ' &""-&%&'"

) ' D#2#3 #
* ZD/' >D /'
&DH13 /!
H' 3 ' OD
+/ 3DH3 /'
D&HDC3 #' 3"D
(2ED .'2
O2/D /IE3DD

< ' 5,#4 (&(' $-*$?+6 $'(' @&' " 81,")&,' &'$!"&(6)$" '# E#%$"' "' ,&+2&!" #8)&,' 3#*&,6 $'(' X&9!&2" "' ")&' $+&')&,& 'N $8"&,' 2,#4 (&(' 8#,' #8 $ @$,&' ,1+"&&' 1'(&,' $ &""-&%&'" %$(&' #' #,' @&8#,&' ")&') ,"?B8 ,+" 3$? #8 ' *" ' '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B"),&&[' '# @$,&' ,1+"&&6 & ,6 9&!1"#,6 (% ' +",$"#,6 #,' ++ .'6 "' ,&+2&!" #8 $'? +"$"&' "$:&' @?) %' $+ +1!)' @$,&' ,1+"&&6 & ,6 9&!1"#,6 (% ' +",$"#,6 #,' ++ .'6 +)$--' @&' ")&' 5,#"&!"#,' #8 $ &""-&%&'"

@" ' E"27 OD
3"D +/ 3DH3 /'
Z"D/D 3"D

< ' 5,#4 (&(' $-*$?+6 $'(' @&' " 81,")&,' &'$!"&(6)$" *)&A&' 1'(&,' $'? &""-&%&'" ")&,&' +)$--' @&' %#,&6 ")$"' '&' +"$"&' 2, #,' "# $'

L 1 ! Bʼ ʼ (2C V

$-ʼ +"$"&ʼ $-6ʼ $'(ʼ ")&ʼ 5&,+#'ʼ *)#ʼ +)$--ʼ @&ʼ ")&ʼ *'&,ʼ *") 'ʼ ")&ʼ 'Z#D/ʼ .ʼ3"Dʼ
&$' '.ʼ#8ʼ ")+ʼ !'ʼ #8ʼ $'?ʼ +1!)ʼ 2,#,ʼ +"$"&6ʼ 'ʼ ,&+2&!"ʼ #8ʼ *) !)6ʼ 2'#ʼ B+1,&
@1"ʼ 8#,ʼ ")&ʼ *#-$+'ʼ 2,&!&('.ʼ -$1+&+6ʼ #,ʼ &")&,ʼ #8ʼ ")&%6ʼ)&ʼ *#1 (ʼ
)$4&ʼ @&&'ʼ ")&ʼ 5,#"&!"#,ʼ #8ʼ ")&ʼ &""-&%&'"6=ʼ+)$--ʼ)?ʼ 4 ,"1&ʼ #8ʼ +1!)ʼ "&
-$1+&+6ʼ #,ʼ &")&,ʼ #8ʼ ")&%6ʼ @&ʼ &9!-1(&(ʼ 8,#%ʼ @&ʼ '.ʼ ")&ʼ 5,#"&!"#,6ʼ &9&E"&$ʼ
")&'ʼ $'(ʼ 'ʼ +1!)ʼ $+&ʼ ")&ʼ 5&,+#'ʼ X 8ʼ$'?[ʼ *)#ʼ 8ʼ+1!)ʼ +"$"&ʼ ((ʼ '#"
&9+'ʼ *#1-(ʼ @&ʼ ")&ʼ 5,#"&!"#,ʼ #8ʼ ")&ʼ &""-&%&'ʼ +)$--ʼ @&ʼ +1!)ʼ 5,#Aʼ
"&!"#,

ʼ 5,#4 (&(ʼ $-*$?+6ʼ $'(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(6ʼ)$"ʼ ,4)&,&ʼ @"D/D!#ʼ3"Dʼ
$-,&$(?6ʼ #,ʼ #'ʼ #,ʼ @&8#,&ʼ ")&ʼ),"?B8 ,+'ʼ 3$?ʼ #8ʼ ' *" ʼ '&ʼ *EC E3 #ʼ
")#1+$'(ʼ & .)"ʼ)1'(,&(ʼ $'(ʼ ") ,"?B"),&&6ʼ $'ʼ +"$"&ʼ 1'(&,ʼ $ʼ &""-&N .ʼ2#ʼ E323Dʼ
%&'"ʼ +)$--ʼ)$4&ʼ @&&'ʼ (+2#+&(ʼ #8ʼ &")&,ʼ $@+#-1"&-?ʼ #,ʼ #")&,* +&6ʼ OD. /Dʼ3"Dʼ E3ʼ *DHʼ
$'(ʼ &")&,ʼ 8#,ʼ 4$-1$@-&ʼ #'+ (&,$"#'ʼ #,ʼ '#"6ʼ ")&ʼ 5&,+#'ʼ *)#ʼ 'ʼ Q !ʼ3"Dʼ+D/ʼ
,&+2&!"ʼ #8ʼ +1!)ʼ +"$"&ʼ *#1-(6ʼ 8ʼ ")+ʼ !'ʼ)$(ʼ '#"ʼ @&&'ʼ 2$++&(6ʼ)$4&ʼ E #ʼ 3 ʼ O2]Dʼ
@&&'ʼ ")&ʼ 2,#2&,ʼ 5&,+#'ʼ "#ʼ)$4&ʼ %$(&ʼ ")&ʼ &'$'ʼ "#ʼ ")&ʼ E ,"ʼ #8ʼ 3"Dʼ D#2#3ʼ3ʼ
'",?ʼ #,ʼ #")&,ʼ E ,"ʼ 8#,ʼ +188&, '.ʼ $ʼ #%%#'ʼ &!#4&,?ʼ #8ʼ ")&ʼ $'(+ʼ 3"Dʼ@/3ʼ .ʼ
&'"$-&(ʼ @?ʼ +1!)ʼ &""-&%&'"6ʼ +)$--6ʼ (1, '.ʼ ")&ʼ #'" '1$'!&ʼ #8ʼ ")&ʼ #3/6ʼ #ʼ2ʼ
+"$"&ʼ *) !)ʼ !#'8&,,&(ʼ ")&ʼ .)"ʼ "#ʼ %$:&ʼ ")&ʼ &'$'"ʼ "#ʼ +1!)ʼ E ,"ʼ =DH FD/6ʼ
#8ʼ '",?ʼ #,ʼ #")&,ʼ E ,"6ʼ @&ʼ ")&ʼ 5,#"&!"#,ʼ #8ʼ +1!)ʼ &""-&%&'" E"27ʼ OD 3"Dʼ +/ 3DH3 /

ʼ 5,#4 (&(ʼ $-*$?+6ʼ $'(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(6ʼ)$"ʼ *)&,&ʼ @"D/D!ʼ #
$'?ʼ 5&,+#'ʼ)$4 '.ʼ &")&,ʼ $-,&$(?6ʼ #,ʼ #'ʼ #,ʼ @&8#,&ʼ ")&ʼ),"?B8 ,+'ʼ 3$?ʼ 3"Dʼ (2EDʼ .ʼ
#8ʼ ' *" ʼ '&ʼ ")#1+$'(ʼ & .)"ʼ)1'(,&(ʼ $'(ʼ ") ,"?B"),&&6ʼ &")&,ʼ 3"Dʼ *EC E^
8#,ʼ 4-1@-&ʼ #'+ (&,$"#'ʼ #,ʼ '#"6ʼ (+2#+&(ʼ #86ʼ &")&,ʼ $@+#-1"&-?ʼ #,ʼ 3 #ʼ .ʼ2ʼ
#")&,* +&6ʼ $ʼ &%$ '(&,ʼ #,ʼ &4&,+#'ʼ 'ʼ &&ʼ 'ʼ $'?ʼ $'(+6ʼ #,ʼ !,&$"&(ʼ =DFD/E #ʼ /.ʼ
$'?ʼ +"$"&ʼ #1"ʼ #8ʼ +1!)ʼ &%$ '(&,ʼ #,ʼ &4&,+#'6ʼ *#1-(ʼ 1'(&,ʼ ")+ʼ /ʼOD. /Dʼ3"Dʼ E3ʼ .ʼ*DHʼ
!"6ʼ 8ʼ ")+ʼ -$1+&ʼ)$(ʼ '#"ʼ @&&'ʼ '+&,"&(6ʼ)$4&ʼ @&&'ʼ ")&ʼ 5,#"&!"#,ʼ Q !ʼ3"Dʼ
#8ʼ ")&ʼ &""-&%&'"ʼ @?ʼ *) !)ʼ ")&ʼ $'(+ʼ *&,&ʼ &'"$-&(ʼ 'ʼ *) !)ʼ +1!)ʼ +D/E #ʼ3ʼ O2]Dʼ3"Dʼ
&%$ '(&,ʼ #,ʼ &4&,+#'ʼ %$?ʼ @&ʼ +1@+'ʼ '.6ʼ $'(ʼ ")&,&@?ʼ @&ʼ &'$@-&(ʼ D#2#3ʼ3ʼ
"#ʼ !#'!1,ʼ 'ʼ ")&ʼ @$,, '.ʼ #8ʼ +1!)ʼ &%$ '(&,ʼ #,ʼ &4&,+#'6ʼ *) !)ʼ 3"Dʼ@/3ʼ .ʼ
)&ʼ !#1-(ʼ '#"ʼ)$4&ʼ (#'&ʼ 8ʼ)&ʼ)$(ʼ '#"ʼ @&!#%&ʼ +1!)ʼ 5,#"&!"#,6ʼ ")&'ʼ #3/6ʼ #ʼ2ʼ
$'(ʼ 'ʼ &4&,?ʼ +1!)ʼ $+&ʼ ")&ʼ 5&,+#'ʼ *)#6ʼ 8ʼ ")+ʼ !'ʼ)$(ʼ '#"ʼ @&&'ʼ =DH FD/6ʼ
2$++&(6ʼ *#1-(ʼ)$4&ʼ @&&'ʼ ")&ʼ 2,#2&,ʼ 5&,+#'ʼ "#ʼ)$4&ʼ %$(&ʼ ")&ʼ &'$'ʼ E"27ʼ ODʼ3"Dʼ
"#ʼ ")&ʼ E ,"ʼ #8ʼ '",?ʼ #,ʼ #")&,ʼ E ,"ʼ 8#,ʼ +188&, '.ʼ $ʼ #%%#'ʼ &!#4&,?ʼ +/ 3DH3 /
#8ʼ +1!)ʼ $'(+6ʼ +)$--6ʼ (1, '.ʼ ")&ʼ #'" '1$'!&ʼ #8ʼ ")&ʼ +"$"&ʼ *) !)ʼ
!#'8&,,&(ʼ ")&ʼ .)"ʼ "#ʼ %$:&ʼ ")&ʼ &'$'"ʼ "#ʼ +1!)ʼ E ,"ʼ #8ʼ '",?ʼ #,ʼ
#")&,ʼ E ,"6ʼ @&ʼ ")&ʼ 5,#"&!"#,ʼ #8ʼ +1!)ʼ &""-&%&'"

ʼ ʼ 5,#4 (&(ʼ $-*$?+6ʼ $'(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(6ʼ)$"ʼ *)&,&6ʼ @"D/Dʼ2ʼO2/Dʼ
1'(&,ʼ $'?ʼ &""-&%&'"ʼ #8ʼ $'(+ʼ %$(&ʼ @&8#,&ʼ ")&ʼ 2$++ '.ʼ #8ʼ ")+ʼ !"6ʼ
")&ʼ 5&,+#'ʼ *)#6ʼ 8ʼ ")+ʼ !'ʼ)$(ʼ '#"ʼ @&&'ʼ 2$++&(6ʼ *#1-(ʼ)$4&ʼ @&&'ʼ
")&ʼ 2,#2&,ʼ 5&,+#'ʼ "#ʼ %$:&ʼ ")&ʼ &'$'"ʼ "#ʼ ")&ʼ E ,"ʼ #8ʼ '",?ʼ #,ʼ #")&,ʼ @&8#,&ʼ")&ʼ
E ,"ʼ 8#,ʼ +188&, '.ʼ $ʼ #%%#'ʼ &!#4&,?ʼ #8ʼ +1!)ʼ $'(+ʼ 8#,ʼ ")&ʼ C2EE #4ʼ .ʼ
51,2#+&ʼ ʼ @$,, '.ʼ $'?ʼ +"$"&ʼ $-ʼ #,ʼ #")&,ʼ +"$"&ʼ 1'(&,ʼ +1!)ʼ !"ʼ
&""-&%&'"6ʼ +)$--ʼ @&ʼ $ʼ @$,&ʼ ,1+"&&6ʼ +1!)ʼ ,1+"&&ʼ +)$--6ʼ (1, '.ʼ ")&ʼ
#'" '1$'!&ʼ #8ʼ ")&ʼ +"$"&ʼ !#'8&,, '.ʼ #'ʼ)%ʼ ")&ʼ .)"ʼ "#ʼ %$:&ʼ ")&ʼ
&'$'"ʼ "#ʼ +1!)ʼ E ,"ʼ #8ʼ '",?ʼ #,ʼ #")&,ʼ E ,"6ʼ @&ʼ ")&ʼ 5,#"&!"#,ʼ #8ʼ
+1!)ʼ &""-&%&'"

ʼ 5,#4 (&(ʼ $-*$?+6ʼ $'(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(ʼ)$"ʼ "ʼ +)$--ʼ + ZD/ʼ3ʼ$
@&ʼ 8$*81-ʼ 8#,ʼ $'?ʼ &""-#,ʼ &'"$- '.ʼ $'(+ʼ "#ʼ $22#'"6ʼ @?ʼ ")&ʼ &""-&Bʼ &""-#,ʼ "#
%&'"ʼ @?ʼ *) !)ʼ ")&ʼ $'(+ʼ +)$--ʼ @&ʼ &'"$-&(6ʼ $'?ʼ 1%@&,ʼ #8ʼ 5&,+#'+

V K' ' L' B' ' (2C

''6&++&6' '#"' &9!&&('.'),&&6' $'(' '#"' @& '.' -&'+6' "#' @&' 5,#"&!"#,'
#8' ")&' &""-&%&'"' '' -&1' #8' ")&' 5&,+#'' *)#' *#1-(')$4&' @&&'' ")&'
5,#"&!"#,' 8' ")+' -$1+&')$(' '#"' @&&'' '+&,"&(6' $'(' &")&,' 8#,' ")&'
E)#-&' #,'$'?' 5$,"' #8' ")&' 5&, #(' 8#,' *) !)' +1!)' 5&,+#'' % .)"')$4&'
!#'" '1&(' 5,#"&!"#,6' $'(' @?' %&$'+' #8' $' 5#*&,' "#' @&' '+&,"&(' '' +1!)'
&""-&%&'"' "#' 2&,2&"1$"&' (1, '.' ")&' E)#-&' #,' $'?' 5$,"' #8' +1!)' 5&N
,#(' ")&' N5,#"&!"#,+) 2' #8' ")&' &""-&%&'"' '' $'?' '&' 5&,+#'' #,'
1%@&,' #8' 5&,+#'+' '' &+ &6' $'(' '#"' @& '.' $'' -&'' #,' -&'+6' *)#%'
")&' 3#'&&' #8' ")&' 5#*&,' +)$--' ") ':' 2,#2&,' @?' 3&&(' "#' $22# '"' 5,#N
"&!"#,' #8' ")&' &""-&%&'"' '' ")&' 5-$!&' #8' $'?' '&' 5&,+#'' #,' 1%@&,'
#8' 5&,+#'+' *)#' +)$--' (&' 8' +)$--' @?' 3&&(' ,&- 'C1 +)')+' #,' ")&,'
88 !&' #8' 5,#"&!"#,' $((' ")&' 5&,+#'' #,' 5&,+#'+' +#' $22# '"&('+)$--6' ''
!$+&' #8' ")&,&' @& '.' '#' 2")&,' 5&,+#'' ")&'' 5,#"&!"#,' #8' ")&' &""-&N
%&'"6' @&' ")&' 5,#"&!"#,6' $'(' 7$--6' '' &$+&' #8' ")&,&' @& '.' $'?' #")&,'
5&,+#'' ")&'' 5,#"&!"#,' #8' ")&' &""-&%&'"6' @&' 5,#"&!"#,' ># '"-?' * ")'
+1!)' #")&,' 5&,+#''] 5,#4 (&(' '&4&,")&-&++6' ")$"' @?' 4 ,"1&' #,' %&$'+'
#8' $'?' +1!)' 22# '"%&'"' ")&' 1%@&,' #8' ")&' 5&,+#'+' "#' !#%2#+&'
")&' 5,#"&!"#,' +)$--' '&4&,' &9!&&('),&&] 5,#4 (&(' 81,")&,' '&4&,N
")&-&++6' ")$"' &4&,?' 3&&(' @?' *) !)' $' 5,#"&!"#,' +)$--' @&' $22# '"&('
1'(&,' $' 5#*&,' '' $' &""-&"9-&'"6' $'(' &4&,?' 3&&(' @?' *) !)' $' 5,#"&!"#,'
+)$--' ,&- 'C1 +)')+' 88 !&6' +)$--' @&' 4# (' 1'-&++' ',#--&(' '' +'
$>&+"?;+' .)' #1," #8')$'!&,?' *") '' 9' $-&'($,' #'")+'
$8"&,' ")&' 9&!1" #'' ")&,&#8] 5,#4 (&(' 81,")&,' '&4&,")&-&++6' ")$"' ")&'
5&,+#'' *)#' @1"' 8#,' ")+' -$1+&' *#1-(')$4&' @&&'' +#-&' 5,#"&!"#,' #8'
")&' &""-&%&'"' %$?' @&' #'&' #8' ")&' 5&,+#'+' "#' @&' $22# '"&(' 5,#N
"&!"#,' 1'(&,' ")+' -$1+&6' 8' ")&' &""-#,' +)$--' ") ':' 8"6' $'(' +)$--6'
1'-&++' #")&,*+&' (,&!"&(' @?' ")&' &""-#,6' $!"' $+' +#-&' 5,#"&!"#,' 8' ")&'
#")&,' 5&,+#'+' !#'+' "1" '.' ")&' 5,#"&!"#,' +)$--')$4&' !&$+&(' "#' @&' +#
@?' 3&$")' #,' &- 'C1 +)%&'"' #8' ")&' 88 !&' @?' 3&&(6' $'(' '#' #")78'
5&,+#'' +)$--')$4&' @&&'' $22# '"&(' '' ")&' 5-$!&

#' (2EDE' .'
I#2H6!'
3"D' /G'
("2#HD77 /'
/' /G'
?DDCD/' /'
/GE' (0^
0 EE #D/E!'
/' 3"D/' +D/^
E #E' #3/ IE3^
DG' Z 3"'
I#23 HE!' /'
#' (2EDE' .'
/D2E #' /'
AD7 #6!' H'
3"D' (I/3' .'
("2#HD/6' 3'
OD' 3"D' +/ ^
3DH3 /

' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(')$"' .'2#6
5&,+#'6' 5,#"&!"#,' #8' $' &""-&%&'"6' +)$--' @&' 1'$" !6' (#"6' #,' #8' V'N
+#1'(' '(6' $'(' *)&")&,')&' +)$--')$4&' @&&'' 8#1'(' +1!)' @?' 'BA'
C1+"#'' #,' '#"6' ")&'' ")&' #,(' .)')$'!&--#,' #8' ' (' #,'
")&' #,(' D&&2&,' #,' ")&' #,(+' #%% ++#'&,+' 8#,' ")&' 1+"#(?' #8' ")&'
H,&$"' &$-' ' (' 8#,' ")&' %&' @& '.6' #,' #")&,' ")&' 5&,+#''
#,' 5&,+#'+' 8#,' ")&' %&' @& '.' '",1+"&(' @?' ")&' D '.;+' .'' $'1$-'
*")' ")&' $,&' $'(' #%% "%&'"' #8' ")&' 1+"#(?' #8' ")&' 5&,+#'+' $'('
+"$"&+' #8' 5&,+#'+' 8#1'(' 1'$" !6' (#"6' $'(' #8' 1'+#1'(' '(6' +)$--'
@&' ")&' 5,#"&!"#,' #8' +1!)' &""-&%&'"' '' -&1' #8' ")&' 5&,+#'' *)#' +)$--'
@&' +1!)' 1'$" !' #,' (#"' #,' #8' 1'+#1'(' '(' $+' $8#,&+$ (' ' #,' 8' $'?'
5&,+#'6' 5,#"&!"#,' #8' $' &""-&%&'"6' +)$--' @&' !#'4 !"&(' #8' ,&$+#'' #A
&-#'?6' #,' 8' $'?' 5&,+#'6' '#"' @& '.' ")&' *'&,' #8' $ 2,#,' +"$"&'
1'(&,' $' &""-&%&'"6' $'(' +)$--' @&' 5,#"&!"#,' #8' +1!)' &""-&%&'"6' $'(' +)$--'
@&' $'' '8$'"6' #,' 8' "+)$--' @&' 1'!&,"$' *)&")&,' +1!)' -$+"B%&'"' #'&('
5&,+#'' @&' -4 '.' #,' (&$(6' ")&'' +' $>&+"?;+' .)' #1," #8')$'N
!&,?' +)$--' @&' ")&' 5,#"&!"#,' #8' +1!)' &""-&%&'"' '' -&1' #8' ")&' 5&,+#''
*)#' +)$--' @&' $'' '8$'"6' #,' *)#+&' 9+"&'!&' !$''#"' @&' $+!&,"$' '&('
$+' $8#,&+$ (' ' #,' 8' $'?' &""-#,' &'"$-'.' $'(+' +)$--' '' ")&' &""-&N
%&'"' @?' *) !)' ")&' $'(+' +)$--' @&' &'"$-&(' (&!-$,&' ")$"' ")&' 5&,+#''
*)#' $+' *'&,' #8' $ 2,#,' +"$"&' 1'(&,' +1!)' &""-&%&'"' P4#1E' @&'
&'""-&(' "#' @&' 5,#"&!"#,' #8' ")&' &""-&%&'"' +)$--' '#"' @&' +1!)' 5,#N
3DH3 /!

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-&!"#,6 $'(ʿ+)$--ʿ '#" $22# '" $'?ʿ 5&,+#'ʿ "# @&ʿ 5,#"&!"#,ʿ 'ʿ) +ʿ "&$(? ")&'ʿ")&ʿ +$ (ʿ #1,"#8ʿ)$'!&,?ʿ+)$--6 $+ʿ"#")&ʿ $'(+ʿ 'ʿ *) !)ʿ+1!)ʿ 2, #,ʿ +"$"&ʿ+)$--ʿ @&ʿ +1@+ +" '.6 @&ʿ ")&ʿ 5,#"&!"#,ʿ ʿ ")&ʿ &""-&%&'" (1, '.ʿ ")&ʿ #'" '1$'!&ʿ #8ʿ +1!)ʿ +"$"&ʿ #,ʿ 8ʿ 'ʿ $'?ʿ #")&?ʿ $+&ʿ *)&,&ʿ ")&,&ʿ +)$--ʿ @&ʿ +1@+ +" '.ʿ 1'(&,ʿ $ʿ &""-&%&'" $'ʿ +"$"&ʿ 2, #,ʿ "#ʿ $'ʿ +"$"&ʿ $ -ʿ 1'(&,ʿ ")&ʿ +$%&ʿ &""-&%&'"6 $'(ʿ +1!)ʿ 2, #,ʿ +"$"&ʿ +)$--ʿ @&ʿ +188 ! &'" "# C1$- 8?ʿ ")&ʿ *'&,ʿ")&,&#8ʿ"# @&ʿ 5,#"&!"#,ʿ#8ʿ ")&ʿ &""-&%&'"6 $'(ʿ")&,&ʿ+)$--ʿ)$22&'ʿ $" $'?ʿ %&ʿ "# @&ʿ '# 5,#"&!"#,ʿ#8ʿ ")&ʿ &""-&%&'" $+ʿ "# ")&ʿ $'(+ʿ 'ʿ *) !)ʿ ")&ʿ 2, #,ʿ +"$"&ʿ +)$--ʿ @&ʿ +1@N + +" '.6 ")&ʿ +$ (ʿ #1," #8ʿ)$'!&,?ʿ +)$--6 *) -&ʿ ")&,&ʿ +)$--ʿ @&ʿ '#ʿ +1!)ʿ 5,#"&!"#,6 $'(ʿ ")&ʿ 2, #,ʿ +"$"&ʿ +)$--ʿ @&ʿ +1@+ +" '.6 @&ʿ ")&ʿ 5,#"&!"#,ʿ #8ʿ ")&ʿ &""-&%&'" $+ʿ "# +1!)ʿ $'(+

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OD/4DG

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3 +2#+ " #"ˢ +)$--ˢ @& &88&!"&(6 #,ˢ @? $ 3&&(ˢ (+" '!" 8,#%ˢ ")& +B ++1,$'!,#<
+1,$'!&6 $'(ˢ "# @& &9&!1"&(ˢ &")&,ˢ #"ˢ #,ˢ $" $'? %& @&8#,& ")& @?$(+" '!"
3$? #"ˢ *) !)ˢ ")& ++1,$'!& +)$--ˢ @& %$(&6 #")&, * +& ")& #'+&'"
+)$--ˢ @& 4# (

3DH3 /ˢ
* DDG!

ˢ '(ˢ @& " 81,")&,ˢ &'$!"&(6)$" 8 ")& 5,#"&!"#,ˢ #8 $
&""-&%&'" +)$--6 @? $ (+" '!" 3&&(6 . 4&) + #'+&'" "# ")& 3 +N
2#+ " #"ˢ #8 $ &'$'" "ˢ $ -6 " +)$-- @& !#'+ (&,&(ˢ ")$" +1!)ˢ 5,#N
"&!"#,ˢ)$+ . 4&"ˢ $"ˢ $@+#-1"& $'(ˢ 1'C1$- 8 &(ˢ #'+&'"6 1'-&++ "ˢ 1!)ˢ
3&&(ˢ)& +)$--ˢ ,&8&,ˢ "# ")& 2$," !1-$,ˢ ++1,$'!& @? *) !)ˢ ")& 3 +N
2#+ " #"ˢ +)$--ˢ @& &88&!"&(6 $'(ˢ +)$--ˢ !#'8 '&) + #'+&'" "# ")&
3 +2#+ " #"ˢ ")&,&@? %$(&

.ˢO6 G E3 #H3
* DDG!ˢ 3 ˢOD
H #E GD/DG
I#\ I27 . DG!
I#7DEE "D
/D.D/ˢ 3 ˢ 3"D
EEI/2#HD

<ˢ '(ˢ @& " 81,")&,ˢ &'$!"&(ˢ)$" "+)$--ˢ '#" @& -$ * 81-ˢ 8#,ˢ
")& 5,#"&!"#,ˢ #8 $ &""-&%&'" *)#6 1'(&,ˢ ") + !"6 +)$--ˢ)$4& . 4&"ˢ
) + #'+&'" "# ")& 3 +2#+ " #"ˢ #8 $ &'$'" "ˢ $ -6 "# ,&4#:& +1!)ˢ
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+/ 3DH3 /ˢ # 3
3 ˢ/DF]D " E
(#ED#3ˢ

<ˢ '(ˢ @& " 81,")&,ˢ &'$!"&(ˢ)$" $'? %$,, &(ˢ E#%$'6 @& '.ˢ
& ")&,ˢ $-#'& #,ˢ ># '"-? * ")ˢ)&,ˢ 1+@$'(ˢ 5,#"&!"#,ˢ #8 $ &""-&%&'"6

ˢ O2// DG
@ O2# +/
3DH3 /ˢ3 ˢH #

VT L ' # B7 ' (2C 03N

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AD O D 7D

%$?1'(&,')' +' !"6 '' ")& +$%& $''&,'$+ 8'+)& *&,&$ &%& #-&6
. 4&)&,' #'+&'" "#")& 3 +2#+ "#'' #8 $ &'$'" '' $ -

(#ED#3 .'2
+/ 3DH3 /'O6
G E3 #H3 * DDG
F G!' I #7DEE
#/ 77DG Z 3"
/'OD. /D 3"D
EE I /2#HD

< ' 5,#4 (&(' $-*$?+6 $'(' @& "81,")&,' &'$!"&(6)$"")& #'N
+&'"#8$ 5,#"&!"#,'"#")& 3 +2#+ "#''#8$ &'$'" C $ -' +)$--6 8'. 4&''
@? $ 3&&(' (+" '!" 8,#%6 ")& ++1,$'!& @? *) !)' ")& 3 +2#+ "#''
+)$--' @& &88&!"&(' @? ")& &'$'" ' $ -6 @& 4# (6 1'-&++' +1!)' 3&&('
@& ',#--&(' '' +' $>&+"?;+ .)' #1," #8)$'!&,? & ")&,' $" #,'
@&8#,&")& %& *)&'")& ++1,$'!& +)$--' @& ',#--&(

(I/3E .'
\ I 36
D&H7 I GDG
./ 0' 4 F #4
2#6 ..DH3 3 '
* EC E 3 #E
O6 D#2#3E #
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ED#3E .'+/ ^
3DH3 /E .'
D337D O D#3E!
Z" H" #
(I/3E .'
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3 OD D..DH^
3127

< ' '(' @& "81,")&,' &'$!"&(6)$" '' $+&+ #8 3 +2#+ "#'+'
#8 $'(+' 1'(&,')' +' !" @? &'$'"+' '' $ -' ")&,&#86 $'(' $-+# ''
$+&+ #8 #'+&'"+' @? 5,#"&!"#,+' #8 &""-&%&'"+' "# 3 +2#+ "#'+' #8
$'(+' 1'(&,')' +' !" @? &'$'"+' '' $ -' ")&,&#86 ")& R1, +(!"#''
#8 #1,"+' #8 C1 "?+)$--' @& $-"#.&")&,' &9!-1(&(6 & ")&,' #'' ")& &)$-8
#8 $ 5&,+#'' !-$ % '.' 8#,' $ 4-1@-& ' %&, "#, #1+' #'+ (&,$" #'6 #,'
'#"6 '' ,&.$,(' "# ")& +2&! 8 !' 5&,8#,%$'!& #8 #'",$!"+6 $'(' ")&
+122-? '.' #8 3&8&!"+' '' ")& 9&!1" #'' & ")&,' #8 ")& 5#*&,+' #8 3 +N
2#+ "#'' . 4&'' @? ")+' !" "# &'$'"+' '' $ -6 #,' #8 ")& 5#*&,+' #8
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+122-? '.' 1'(&,'$'? ,!1%+"$'!&+' #8")& E $'" #8 9&!1" #'' #8 +1!)'
5#*&,+' #8 3 +2#+ "#'' $'(' #'+&'" ,&+2&!" 4&-?6 $'(' '' ,&.$,(' "#
. 4 '.' &8&!" '' $'?#")&,' $''&,' "# $'? !"#,' 3&&(' @? $ &'$'"
'' $ -' #,' 5,#"&!"#,' #8 $ &""-&%&'" *) !)' '' $ 21," #8 $*' *#1-('
'#" @& $'' &8&!"1$-' 3 +2#+ "#'' #,' #'+&'" 1'(&,')' +' !"' $'(' ")$"
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'' C1 "?6 $'(' '# #'+&'" @? $ 5,#"&!"#,' #8 $ &""-&-2&'" "# $ 3 +N
2#+ "#'' #8 $'(+' 1'(&,')' +' !" @? $ &'$'" '' $ -' ")&,&#8 ''
C1 "?6 +)$--' @& #8 $'? #,!& 1'-&++' +1!)' 3 +2#+ "#'' #,' #'+&'"
#1-(' '' !$+& #8 $'' +"$"& $ -' $" $' @& $'' &8&!"1$-' 3 +2#+ "#'' #,'
#'+&'" 1'(&,')' +' !" ''$ #1," #8 $*

/G ("2#^
HD77 /! H'
3 '"2FD+ ZD/'
3 ' H #ED#3 3 '
2 * EC E 3 #
O6 2 D#2#3
2 7! 2#G
3 ' O2]D E I H"
' /GD/E 2E
E"277 OD
3" I4"3 #D '
HDEE 2/6N 2#G
.'2#6 3"D/'
+D/E #E"277
OD5 #3+/ ^
3DH3 /'3"D
* EC E 3 #
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F27 G Z 3" I3
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< ' 5,#4 (&(' $-*$?+6 $'(' @& "81,")&,' &'$!"&(6)$" ''&4&,?
K $+& '' *) !)' ")& #,(' .)')$'!&--#,6 #,(' D&&2&,' #,' #,(+'
#%% ++ #'&,+' 8#,' ")& 1+"#(?#8")& H,&$" &$-6 #,' #")&,' ")& 5&,+#''
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#8 "-& 5&,+#'+' $'(' +"$"&+' #8 5&,+#'+' 8#1'(' -1'$" !6 (#"6 $'(' #8
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D&&2&,6 #,' #,(+' #%% ++ #'&,+6 #,' 5&,+#'' #,' 5&,+#'+' +# '",1+"&('
$+' $8#,&+$ (6 #,' ")& +$ (' #1," #8)$'!&,? X$ '")& $+& %O? @&[6
*) -& 5,#"&!"#,' #8 +1!)' &""-&%&'"6 +)$--6 #'' ")& #" #'' #,' 5&" "#''
'' $ +1%%$,? E$? @? $ &'$'" '' $ -' 1'(&,'+1!)' &""-&%&'"6)$4&
81--' 5#*&,' "# !#'+&'" "# $ 3 +2#+ "#'' 1'(&,')' +' !"@? +1!)' &'$'"
'' $ -6 $'(' ")& 3 +2#+ "#'' "# @& %$(& @? +1!)' &'$'" '' $ -' 12#''
+1!)' #" #'' #,' 5&" "#'' $+' $8#,&+$ ('+)$--' @& +1!)' $+' +)$--' @& $22,#4&('
#8 @? +1!)' #,(' .)')$'!&--#,6 #,(' D&&2&,6 #,' #,(+' #%% +N
+#'&,+6 #,' 5&,+#'' #,' 5&,+#'+' +# '",1+"&(' $+' $8#,&+$ (6 #,' ")& +$ ('
#1," #8)$'!&,? X$+' ")& $+& %$? @&[' $'(' " +)$--' @& -$*81-' 8#,'
+1!)' #,(' .)')$'!&--#,6 #,(' D&&2&,6 #,' #,(+' #%% ++ #'&,+6
#,' 5&,+#'' #,' 5&,+#'+' +# '",1+"&(' $+' $8#,&+$ (6 #,' ")& +$ (' #1," #8
)$'!&,? X$+' ")& $+& %$? @&[6 "# %$:& +1!)' ,(&,+' '")& $""&,'
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#, (' D&&2&,6' #,' #, (+' #%% ++ #'&,+6' #,' 5&,+#'' #,' 5&,+#'+' +#' '",1+"&(' $+' $8#,&+$ (6' #,' ")&' +$ (' #1,"' #8')$'!&,?' X$+' ")&' $+&' %$?' @&[6' +)$--6' '' - &1' #8' $'?' +1!)' 5&,+#'' $+' $8#,&+$ (6' @&' ")&' 5,#N "&!"#,' #8' $' &""-&%&'"6' $'(' ")&,&' +)$--' @&' $'?' #")&,' 5&,+#'' 5,#"&!"#,' #8' ")&' +$%&' &""-&%&'"' ># '"-?' * ")' +1!)' 5&,+#'' $+' $8#,&+$ (6' ")&'' $'(' '' &4&,?' +1!)' $+&' ")&' 3 +2#+ "#'' @?' ")&' &'$'"' '' $ -6' ")#1.)' $22,#4&(' #8' $+' $8#,&+$ (6' +)$--' '#"' @&' 4$- (6' 1'-&++' +1!)' #")&,' 5&,+#'' @& '.' 5,#"&!"#,' $+' $8#,&+$ (' +)$--' !#'+&'"' ")&,&"#' '' ")&' $''&,' '' *) !)' ")&' #'+&'"' #8' ")&' 5,#"&!"#,' +' @?' ") +' !"' ,&C1 ,&(' "#' @&' . 4&'

' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(')$"' '' &4&,?' $+&' '' *) !)' ")&' #, (' .)')$'!&--#,6' #, (' D&&2&,' #,' #, (+' #%B' % ++ #'&,+' 8#,' ")&' 1+"#(?' #8' ")&' H,&$"' &$-6' #,' #")&,' ")&' 5&,+#'' #,' 5&,+#'+' '",1+"&(' * ")' ")&' $,&' $'(' #%% "%&'"#8")&' 1+"#(?' #8' ")&' 5&,+#'+' $'(' +"$"&+' #8' 5&,+#'+' 8#1'(' -1'$" !6' (#"6' $'(' #8' 1'+#1'(' '(6' #,' +' $>&+"?;+' .)' #1,"' #8')$'!&,?6' +)$--' @&' ")&' 5,#N "&!"#,' #8' $' &""-&%&'"6' '#' 3#!1%&'"' #,' '+",1%&'"6' $+' 4 (&'!&' #8' ")&' #'+&'"' #8' +1!)' 5,#"&!"#,' "#' ")&' 3 +2#+ "#'' #8' $' &'$'"' '' $ -' 1'(&,' +1!)' &""-&%&'"6' +)$--' @&' ,&C1 + "&' @&?#'(' ")&' ,(&,' ''#@&(&'!&' "#' *) !)' ")&' 3 +2#+ "#'' +)$--')$4&' @&&'' %$(&

' '(' @&' "' 81,")&,' &'$!"&(')$"' $--' ")&' 2,&4 #1+' -$1+&+' '' ") +' !"6' +#' 8$,' $+' ,!1%+"$'!&+' $'(' ")&' (88&,&'"' &'1,&+' * --' $(% "6' +)$--' $22-?' "#' $'(+')&-(' @?' #2?' #8' #1,"' #--6' &9!&2"' ")$"' $' 3 +2#+ "#'' #8' $'?' +1!)' $'(+' 1'(&,' ") +' !"' @?' $' &'$'"' '' $ -' ")&,&#86' *)#+&' +"$"&' +)$--' @&' $'' +"$"&' $"' $*6' +)$--' @&' %$(&' @?' 1,,&'(&,6' $'(' &9!&2"' ")$"' $' 3 +2#+ "#'' #8' $'?' +1!)' $'(+' 1'(&,' ") +' !"' @?' $' &'$'"' '' $ -' ")&,&#86' *)#+&' +"$"&' +)$--' @&' %&,&-?' $'' +"$"&' '' C1 "?6' %$?' @&' %$(&' &")&,' @?' 1,,&'(&,' #,' @?' $' 3&&(' $+')&,& 'B$8"&,' 2,#4 (&(6' $'(' &9!&2"' +#' 8$,' $+' +1!)' -$1+&+' $,&' #")&,' * +&' $-"&,&(' #,' 4$, &(' @?' ")&' -$1+&+')&,& '' $8"&,' !#'"$ '&(

' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(6')$"' 8' ")&' #'+&'"' #8' ")&' 5,#"&!"#,' #8' $' &""-&%&'"' "#' ")&' 3 +2#+ "#'' #8' $'(+')&-(' @?' #2?' #8' #1,"' #--' @?' $' &'$'"' '' $ -' ")&,&#8' +)$--' @&' . 4&'' @?' 3&&(6' +1!)' 3&&(' +)$--6' &")&,' $"' #,' @&8#,&' ")&' %&' *)&'' ")&' 1,N ,&'(&,' +)$--' @&' %$(&' @?' *) !)' ")&' 3 +2#+ "#'' +)$--' @&' &88&!"&(6' @&' &9&!1"&(' @?' +1!)' 5,#"&!"#,6' $'(' 2,#(1!&(' "#' ")&' #,(' #8' ")&' $'#,' #8' *) !)' ")&' $'(+' $,&' 5$,!&-6' #,' "#') +' "&*$,(6' #,' "#' ")&' 3&21"?' #8' +1!)' "&*$,(' $'(' ")&' #'+&'"' #8' +1!)' 5,#"&!"#,' +)$--' @&' 4#' 1'-&++' +1!)' 3&&(' +)$--' @&' +#' &9!1"&(' $'(' 2,#(1!&(' $'(' #'' ")&' 5,#(1!" #'' #8' ")&' 3&&(' ")&' #,(6' #,' "&*$,(' #,' 3&21"?' "&*$,(6' +)$@@?' E, "'.' 1'(&,') +' $'(6' "#' @&' '(#,+&(' #'' ")&' 3&&(6' $!:'#*N -&(.&' ")$"' ")&' +$%&' *$+' 2,#(1!&(' * ") '' ")&' %&' - % "&(6' $'(' +)$--' !$1+&' +1!)' 3&&(6' * ")' ")&' '(#,+&%&'"' ")&,&#'6' "#' @&' &'"&,&(' #'' ")&' #1,"' #--+' #8' ")&' $'#,' $'(' ")&' '(#,+&%&'"6' 21,2#," '.' "#' @&' +#' + .'&(6' +)$--' #8' "+&-8' @&' * ' ' 4 (&'!&' ")$"' ")&' 3&&(' *$+' 2,#(1!&(' * ") '' ")&' %&' - % "&(6' $'(' ")$"' ")&' 5&,+#'' *)# + .'&(' ")&' '(#,+&%&'"' *$+' ")&' #,(' #8' ")&' $'#,6' #,' @ +' "&*$,(6' #,' ")&' 3&21"?' #8' +1!)' "&*$,(' ' $'(' $8"&,' +1!)' 3&&(' +)$--')$4&' @&&'' +#' &'"&,&(' ")&' #,(' #8' ")&' $'#,6' #,') +' "&*$,(6' #,' ")&' 3&21"?' #8' +1!)
' D' +1!)

' /GD/' .'3"D'
/G' ("2# '
GD#HD' .'
(#ED#3'

"D' C/DF IE'
(72 I EDE' 3 '
#2?)#E+6
Z 3"' HD/32 #'
2/ 23 #E'

E' 3 ' 3"D'
*DDG' .'(#^
ED#3' 2#G' 3"D'
#3/6' .' 3'
#' 3"D' (I/3'
= 77E' Z"D/D'
3"D' +/ 3DH3 /'
.'2' D337D^
OD#3' .'
(C6" 7GE'
H #ED#3E' O6'
*DDG' 3 ' 3"D'
* EC E 3 #'
.'2' D#2#3'
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+1!) "&*$,(6 +)$-- '(#,+& ")&,&#' $ &%#,$'(1% + .'&(@?) %6
"&+" 8? '.")& '",? #8J")& +$%& #'")& #1," #--+

E3 '3"D
(#ED#3 .
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.2 D337D^
OD#3 .
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Z"D# # 3
4 FD# O6
*DDG 2#G
3"D C/DED/F^
#4 . F^
GD#HD .3"D
E2OD #3"D
(I/3 = 77E!

5,#4 (&($-*$?+6 $'(@&-" 81,")&,&'$!"&(6)$" 8")& #'+&'"
#8")& 5,#"&!"#, #8 $ &""-&%&'" "# ")& 3 +2#+ " #' #8 $'(+)&-(@?
#2? #8 #1," #-- @? $ &'$'" ' $ - ")&,&#8 +)$-- '#" @& . 4&'
@? 3&&(6 ")&' $'(' +1!) $+& ")& #'+&'" +)$-- @& . 4&' @? ")&
5,#"&!"#, "#")& 5&,+#' "$: ' . ")& 1,,&'(&, @? *) !)")& 3 +2#+ " #'
+)$-- @& &88&!"&($'(8")& 1,,&'(&, +)$-- @& %$(& #1" #8 #1,"6
" +)$-- @& &92,&++-? +"$"&(' ")& &%#,$'(1% #8 +1!) 1,,&'(&,
")$" +1!) #'+&'")$(@&&' . 4&'6 $'(+1!) &%#,$'(1% +)$-- @&
+ .'&(@? ")& 5,#"&!"#, $'(")& #,(#8 ")& $'#, #8 *) !) ")&
$'(+ $,& 5$,!&-6 #,) + "&*%(6 #, ")& 3&21"? #8 +1!) "&*$,(6
+)$-- !$1+& ")& &%#,$'(1%6 * ") +1!) "$"&%&'" ")&,& ' $+ "# ")&
#'+&'"6 "# @& &'"&,&(#' ")& #1," #--+ #8 ")& $'#, $'(+1!)
&%#,$'(1% +)$-- @& .##(4 (&'!& #8 ")& #'+&'" $'(#8 ")&
1,,&'(&, ")&,& ' +"$"&("# @& %$(& $'(")& '",? #8 ")& &%#N
,$'(1% #' ")& #1," # -+6 #, $ #2? #8 +1!) '",?6 +)$-- @& $+
4-$@-& 8#, ")& 51,2#+&+ #8 4 (&'!& $+ $'? #")&, '",? #' ")&
#1," #--+6 #, $ #2? ")&,&#8 @1" 8")& 1,,&'(&, +)$-- @& %$(&
' #1,"6 ")& #,(#8 ")& $'#,6 #,) + "&*$,(6 #, ")& 3&21"? #8
+1!) "&*$,(6 +)$-- !$1+& $' '",? #8 +1!) 1,,&'(&,6 !#'"$ ' . $
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#, $ #2? #8 +1!) '",?6 +)$-- @& $+ 4-$@-& 8#, ")& 51,2#+&+
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+ ZD/3
D\ I 32O7D
D#2#3E #
2 7 .(C6
7GE3 G E^
C ED .3"D /
2#GE O6
*DDG

5,#4 (&($-*$?+6 $'(@& " 81,")&, &'$!"&(6)$"$ &'$'"
' $ - #8 $'(+)&-(@? #2? #8 #1," #--6 *)#+& +"$"& +)$-- @&
%&,&-? $' +"$"& ' C1 "?6 +)$--)$4& 81-- 5#*&, @? 3&&("# (+2#+&
#8 +1!) $'(+ 1'(&,") + !" '")& +$%& $''&, ' &4&,? ,&+2&!"
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")& 2,&4 #1+ -$1+&+ '") + !" +)$--6 +# 8$, $+ ,!1%+"$'!&+ * --
$(% "6 $22-? "# ")& $'(+ ' ,&+2&!" #8 *) !) $'? +1!) &C1 "$@-&
&'$'" ' $ - +)$-- 4 -) %+&-8 #8 ") + 2,&+&'" -$1+& $'(")&
3&&(@? *) !)")& 3 +2#+ " #' +)$-- @& &88&!"&(+)$-- @& &'"&,&(#'
")& #1," #--+ #8")& $'#, #8 *) !)")& $'(+ ")&,&@? (+2#+&(#8
%$? @& 5$,!&- $'(8")&,& +)$-- @& $5,#"&!"#, "# !#'+&'" "#")&
3 +2#+ " #'6 $'(+1!) 5,#"&!"#,+)$-- . 4&) + #'+&'" @? $ (+" '!
3&&(6 ")& #'+&'" +)$-- @& 4#(1'-&++ ")& 3&&(8 #'+&'" @&
&9&!1"&(@? ")& 5,#"&!"#, & ")&, #' #, $"' $'? %& @&8#,&")& 3$?
#' *) !)")& 3&&(#8 3 +2#+ " #' +)$-- @& &9&!1"&(@? ")& &C1 "$@-&
&'$'" ' $ - $'(+1!) 3&&(#8 #'+&'" +)$-- @& &'"&,&(#'")&
#1," #--+ $'(' " +)$-- @& %2&,$" 4& #'")& #,(#8 ")& $'#,6 #,
) + "&*$,(6 #, ")& 3&21"? #8 +1!) "&*$,(6 *)&' ,&C1 ,&(+# "# (#6
"# &'"&, +1!) 3&&(#, 3&&(+ #' ")& #1," #--+6 $'( )& +)$--
'(#,+& #' &$!) 3&&(+# &'"&,&($ &%#,$'(1%6 + .'&(@?) %6
"&+" 8? '.")& '",? #8")& +$%& #'")& #1," #--+] 5,#4 (&($-*$?+6
")$" &4&,? 3&&(@? *) !) $'(+)&-(@? #2? #8 #1," #-- +)$--=@&
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+)$-- @& 4#($'(&44&!"1$- 5&,+#' !-$% '.+1!) $'(+6 $'?#8")&%6
8#, 4-1@-& #'+ (&,$" #' 1'(&, $'? +1@+&C1&'" ++1,$'!& (1-?
D#3D/DG

&'"&,&('#'' ")&' #1," #--+' #8'")&' $'#,' #8' *) !)' ")&' $'(+' %$?' @&' 5$,!&-6' 1'-&++' ")&' 3&&(' #8' 3 +2#+ " #'' @?' ")&' &C1 "$@-&' &'$'" '' $ -' @&' &'"&,&('#'' ")&' #1," #--+' #8' +1!)' $'#,' @&8#,&' ") j' +1@+&N C1&'" ++1,$'!&6'+)$--')$4&' @&&'' &'"&,&(

< ' 5,#4 (&('$-*$?+6' $'('@&' "'81,")&,' &'$!"&(6') j" '' '#' $+&' *)&,&' $'?' 3 +2#+ " #'' 1'(&,' ") +' !" #8' $'(+')&-(' @?' #2?' 58' #1," #--6' @?' $' &'$'" '' $ -' ")&,&#8,' +)$--' @&' &88&!"&(' @?' 1,,&'(&,' #,' @?' 3&&(6' +)$--' ")&' 1,,&'(&,' #,' ")&' &%#,$'(1%6 '/ $' #2?' ")&,&#86' #,' ")&' 3&&(' #8' 3 +2#+ " #'6' #,' ")&' 3&&(6' 8' $'?6' @?' *) !)' ")&' 5,#"&!"#,' +)$--' !#'+&'" "#' ")&' 3 +2#+ " #'6' ,&C1 ,&' ',#-%&'"#")&,* +&' ")$'' @?' '",?' #'' ")&' #1," #--+

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'<' '('@&' "'81,")&,' &'$!"&(6')$"' $8"&,' ")&') ,"?B8 ,+" 3$?' #8' ' *" ' '&' ")#1+$'(' & .)")1'(,&('$'('") ,"?B"),&&' +#' %1!)' #8' $'' !" 2$++&(' '' ")&' 9")' &$,' #8' ")&' & .'' #8' +' -$"&' $>&+"?' D '.' ' ")&' #1,")6' '" "1-&(' ' ' ' * ' ' $ ' ' ' (+ ' $+6' &%2#*&,+' ")&' #%% ++ #'&,+' '$%&(' '' $'?' #%% ++ #'' #8' $':,12" ++1&(' $.$ '+" $' &'$'" '' $ -' "#' %$:&' $-&' #8' $'?' $'(+6' &'&%&'"+6' $'(' &,&("$%&'"+6' + "1$"&' & ")&,' '' . '#,' ' *)&,&#8' +1!)' $':,12" +)$--' @&' +& +&(' #8' $'?' +"$"&' $ -' '' 5#++&++ #'6' &4&,+ #'6' #,' &%$ '(&,6' $'(' *)&,&%' '#' &4&,+ #'' #,' &%$ '(&,' +' '' ")&' ,#* '6' ")&' H 8" #,' 5,#4 + #'' #8' ")&' ,#* '66' +)$--' @&' $'('")&' +$%&' +')&,&@?' ,&2&$-&('] 5,#4 (&(' $-*$?+6' ")$"6' +1!)' &2&$-' +)$--' '#" &9"&'('"#' ")&' $'(+6' *)$"&4&,' ")&' &'1,&' %$?' @&6' #8' $'?' 5&,+#'' $(>1(.&(' $' $':,12" 1'(&,' $'?' #%% ++ #'' #8' $':,12"6' #,' 1'(&,' $'?' $" *) !)6' '' 21,+1$'!&' #8' ")&' +$ (' !" #8' ")&' 9")' &$,' #8' ")&' & .'' #8' D '.' ' ")&' #1,")6' #,' #8' $'?' 8#,%&,' !" !#'!&,' '.' $':,12"+6' #,' #8' $'' !" 2$++&(' '' ")&' ,+" $'(' &!#'(' &$,+' #8' ")&' & .'' #8' +' $>&+"?' D '.' / *' ")&' #1,")6' '" "1-&(' ' ' ' " ' ' ' '(+ ' @$")' @&&'' #,' +)$--' @&' ++1&(' #'' #,' @&8#,&' ")&') ,"?B8 ,+" 3$?' #8' ' *" ' '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B"),&&] 5,#4 (&(' $-+#6' ")$" +1!)' &2&$-' +)$--' '#")$4&' ")&' 88&!" #8' ,&4 4 '.' ''$'?' ,&+2&!" ")&' !"+' ,&2&$-&(' @?' ")&' +$ (' !" #8' ")&' 9")' &$,' #8' ")&' & .'' #8' D '.' ' ")&' #1,")6' #,' $'?' #8' ")&%

=DCD27' .'3"D' 2C]/IC3' H3!' T' H' T' E' TV !' E ' .2/' 2E' /D^ 723DE' 3 ' E^ 323DE' 2 7!' O I 3' # 3' 3 ' D&3D#G' 3 ' 2#GE' .'2' 2#]/IC3' I#GD/' 2' (O^ O EE #' '/ A 23' EE I DG' #' /' OD. /D' 3"D' ' 3' .' *DD' Q !' # /' 3 ' /DF FD' . /O D/' H3E

< ' '('@&' "'81,")&,' &'$!"&(')$"' $'?' #%% ++ #'&,' $!" '.' '' ")&' 9&!1" #'' #8' $'?' $" *) !)' $8"&,' ")&') ,"?B8 ,+" 3$?' #8' ' *" ' '&' ")#1+$'('& .)")1'(,&('$'('") ,"?B"),&&' +)$--' @&' ++1&(' '' 21,+1$'!&' #8' ")&' +$ (' !" 2$++&(' '' ")&' ,+" $'(' &!#'(' &$,+' #8' ")&' & .'' #8' D '.' / *' ")&' #1,")6' 1'(&,' *) !)' $'?' 5&,+#'' +)$--' @&' $(>1(.&(' $' $':,12" *)#' $"' ")&' %&' #8' ++1 '.' +1!)' $"6' #,' $"' $'?' %&' $8"&,*$,(+6' @&8#,&')&' +)$--')$4&' #@"$ '&(') +' &," 8 !$"&6' +)$--' @&' $'' $!"1$-' &'$'" '' $ -' #8' $'(+' #8' $'?' &'1,&6' +)$--' @?' 3&&(' (+2#+&' #8' +1!)' $'(+'"#' $' 51,!)$+&,' 8#,' 4-1@-&' #'+ (&,$" #'6' 8#,' ")&' &'&8 "#8' ")&' !"$'(+' #8' +1!)' $!"1$-' &'$'" '' $ -6' $'('+)$--' !,&$"&' @?' $'?' +1!)' 3 +2#+ " #'' $+' -$, .&' $'' +"$"&' ''")&' $'(+' (+2#+&(' #8' $+' ")&' $!"1$-' &'$'" '' $ -6' 8')&')$(' '#" @&!#%&' @$':,12"6' !#1-(')$4&' (#'&' 1'(&,' ") +' !" $'" ")&' %&' #8' +1!)' 3 +2#+ " #'] 5,#4 (&(' $-*$?+6' ")$" 8' $" ")&' %&' #8' ")&' 3 +2#+ " #'' #8' +1!)' $'(+6' #,' $'?' #8' ")&%6' @?' +1!)' #%% ++ #'&,' $+' $8#,&+$ (6' ")&,&' +)$--' @&' $' 5,#"&!"#,' #8 ")&

"D' (O^ O EE #D/!' #' 3"D' (2ED' .' 2#' 2H3 I 2T' D#2#3' #' 2 T' ODH O^ #4' O2#]/IC3' 2.3D/' 3"D' E3' .' *DH ' Q !' O6' *DDG' 3 ' G EC ED' .' 3"D' 2#GE' .' 3"D' 2#]^ /IC3' 3 ' Q% +I/H"2ED/

TU ' ' $ B ' ' (2C

")&' &""-&%&'" @?' *) !)' ")&' +"$"&' #8' +1!)' $!"1$-' &'$'" " $ -' " ")&' $'(+' (+2#+&(' #8' @?' +1!)' #%% ++ #'&,' *$+' !,&$"&(6' $'(' ")&' #'+&'" #8' +1!)' 5,#"&!"#,' *#1-(')$4&' @&&" ,&C1 + "&' "#')$4&' &'$@-&(' ")&' $!"1$-' &'$'" " $ -6' 8')&')$(' '#" @&!#%&' @$':,12"6' "#')$4&' (+2#+&(' #8' +1!)' $'(+' "#' ")&' 81--' 9"&'" "#' *) !)6' 8' ")&,&')$(' @&&" '#' +1!)' 5,#"&!"#,6')&' !#1-(' 12(&,' ") +' !")$4&' (+2#+&(' #8' ")&' +$%&6' $'(' +1!)' 5,#"&!"#,' +)$--' '#" !#'+&'" "#' ")&' 3 +2#+ "#'6' ")&'" $'(' " +1!)' $+&' ")&' +"$"&' !,&$"&(' " +1!)' $'(+6' #,' $'?' #8' ")&%6' @?' ")&' 3 +2#+ "#'" #8' +1!)' #%% ++ #'&,6' +)$--' @&' $+' -$,.&' $'" +"$"&' $+' ")&' $!"1$-' &'$'" " $ -6' 8')&' @$(' '#" @&!#%&' @$':,12"6' !#1-(' $'" ")&' %&' #8' +1!)' 3 +2#+ "#'")$4&' !,&$"&(' 1'(&,' ") +' !" " +1!)' $'(+' * ")#1" ")&' #'+&'"6' #8' ")&' 5,#"&!"#,6 6

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OD #4' #'
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E3 3"D(#'
ED#3' .' 3"D'
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< ' '(' @&' "81,")&,' &'$!"&(6')$" ")&' #%% ++ #'&,' $!" '.' " ")&' 9&!1"#'" #8' $'?' +1!)' $" $+' $8#,&+$ (' 1'(&,' *) !)' $' 5&,+#'" >. '.6#,' @&8#,&' #@"$ ' '.') +' &,"8 !$"&' @&!#% '.6' $" $ "1$- &""$'" " &'1,&6' #,' $' &'$'" " $ -' &'" "-&(6' "#' $' $+& &&' " $'(+' #8' $'?' &'1,&6' +)$--' @&' $(>1(.&(' $' $':,12"6' +)$--6' 8' ")&,&' +)$--6' @&' $' 5,#"&!"#,' #8' ")&' &""-&%&'" @?' *) !)' ")&' +"$"&' $ -' #8' +1!)' $!"1$-' &'$'" " $ -6' #,' ")&' +"$"&' $ -6' !#'4&,"&(' '"#' $' $+&' &&' X$+' ")&' $+&' %$?' @&[6' *$+' !,&$"&(6' +"$'(' " ")&' 5-$!&' #8' +1!)' $!"1$-' &'$'" " $ -6' #,' &'$'" " $ - " &'" "-&(' $+' $8#,&N +$ (6' +#' 8$,' $+' ,&.$,(+' ")&' #'+&'" #8' +1!)' 5,#"&!"#,' $'(' ")&' 3 +2#N +"#'" #8' +1!)' $'(+6' #,' $'?' #8' ")&%6' @?' +1!)' #%% ++ #'&,' $+' $8#,&N +$ (6' 8' %$(&' * ")' ")&' #'+&'" #8' +1!)' 5,#"&!"#,6' +)$--6' *)&")&,' +1!)' #%% ++ #'&,' %$?')$4&' %$(&' 1'(&,' ") +' !" $' 2,#' 3 +2#+ "#V #8' ")&' +$%&' $'(+' * ")#1" ")&' #'+&'" #8' 1!)' 5,#"&!"#,' #,' '#"A' #,' *)&")&,' $' 2,#' $-&' #,' #'4&?$'!&' #8' ")&' +$%&' $'(+7' +)$--')$4&' @&&" %$(&' #,' '#"6' 1'(&,' ")&' +$(' ' !"+' #8' ")&' 9"' &&$,' #8' D '.' ' ")&' #1,")' $'(' ")&' ,+" $'(' &!#'(' &&$,+' #8' D '.' N *' ")&' #1,")6' #,' &' ")&,' #8' ")&%6' #,' $'?' !"+'),&$8"&,' "#' @&' 2$++&(' !#'!&,' '.' $':,12"+6')$4&' ")&' +$%&' 88&!"]$+' +1!)' 3 +2#+ "#'" *#1-(')$4&')$(' 8' +1!)' $!"1$-' &'$'" " $ -6' #,' &'$'" " $ -6' +#' &'" "-&(' $+' $8#,&+$ (6')$(' '#" @&!#%&' @$':,12"6' $'(' +1!)' 3 +2#+ "#'")$(' @&&" %$(&' @?') %' 1'(&,' ") +' !"66' *")' ")&' #'+&'" #8' +1!)' 5,#"&!"#,' $'(' $--' ")&' 2,&4 #1+' -$1+&' " ") +' !"6' ' ,&.$,(' "#' ")&' #'+&'" #8' ")&' 5,#"&!"#,' "#' ")&' 3 +2#+ "#'" #8' $' &'$'" " $ -' #8' $'(+' '#")&-(' @?' #2?' #8' #1," #--6' $'(' ' ,&.$,(' "#' ")&' %&' $'(

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@?' #2?' #8' #1,"' #--6' $'(')&' +)$--' . 4&') +' #'+&''' @?' $' (+" '!"
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%%&($"&-?' ")&,&12#'6' +1!)' $+&' &&' +)$--' @&' &'-$,.&(' ''#' ")&'
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E323D' H/D^
23DG' &'.2F I/'
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H"2ED/' O6' 2#
2H3I27' D^
#2#3' #' 2 7'
ODH O #4'
O2#]/IC3!'
/' O6' 2' D^
#2#3' #' 2 7'
D#3 37DG' 3 ' 2'
2ED' ADD'
ODH O #4'
O2#]/IC3!'
H #. /ODG' O6'
3"D' * EC E^
3 #' .'3"D'
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D/!' .'# ' +/ ^
3DH3 /!' /' OD^
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Z 3"' " E' (#^
ED#3!' /' #
3"D/D' HD2E #4'
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&'""-&(' "#' $' $+&' &&' '' $'(+' #8' $'?' &'1,&6' +)$--')$4&' $-,&$(?'
!,&$"&(' #,' +)$--')&,&$8"&,' !,&$"&' '' +1!)' $'(+6' #,' $'?' #8' ")&%6' $'
4# ($@-&' +"$"&' '' 8$4#1,' #8' $' 51,!)$+&,' 8#,' 4-1@-&' #'+ (&,$"#'6'
$'(' +1!)' $!"1$-' &'$''' '' $-6' #,' &'$''' '' $-' +#' &'""-&(' $+'
$8#,&+$ (6' +)$--' @&' $(>1(.&(' $' $':,12"' 1'(&,' $'?' +1!)' $"' $+' $8#,&N
+$ (6' $'(' ")&' #%% ++#'&,' $!" '.' '' ")&' 9&!1" #'' #8' +1!)' $"' +)$--'
%$:&' $'?' 3 +2#+ "#'' 1'(&,' ") +' !' #8' ")&' $'(+' '' *) !)' +1!)'
4# ($@-&' +"$"&' +)$--' @&' ,&$"&(6' #,' $'?' #8' ")&%6' ")&'' $'(' '' +1!)' $+&6'
8' ")&,&' +)$--' @&' '#' 5,#"&!"#,' #8' ")&' &""-&%&'' @?' *) !)' ")&' +"$"&'
$-' #8' ")&' $!"1$-' &'$''' '' $-6' #,' ")&' +"$"&' $-' !#'4&,"&(' '"#'
$' $+&' &&6' $+' ")&' $+&' %$?' @&' E$+' !,&$"&(6' #,' @&' '.' +1!)' 5,#"&!"#,'
)&' +)$--' !#'+&'' "#' ")&' 3 +2#+ "#'' @?' +1!)' #%% ++#'&,' $+' $8#,&N
+$ (6' *)&")&,' +1!)' #%% ++#'&,' %$?')$4&' %$(&' 1'(&,' ") +' !' $'
2,&4 #1+' 3 +2#+ "#'' #8' +1!)' $'(+' #,' #"6' #,' *)&")&,' $' 2,#' $-&' #,'
#'4&?$'!&' #8' ")&' +$%&' $'(+' +)$--')$4&' @&&'' %$(&' #,' '#' 1'(&,'
")&' +$ (' !"+' #8' ")&' 9")' &$,' #8' D '.' ' ")&' #1,")' $'(' ")&'
,+' $'(' &!#'(' &$,+' #8' D '.' / *' ")&' #1,")6' #,' &")&,' #8' ")&%6'
#,' $'?' #")&,' !"+')&,&$8"&,' "#' @&' 2$++&(' !#'!&' '.' $':,12"+6' ")&'
3 +2#+ "#'' @?' +1!)' #%% ++#'&,' +)$--')$4&' ")&' 88&!"' #8' !#'8 ,% '.'
+1!)' 4# ($@-&' +"$"&' 1' ")&' $'(+' ")&,&@?' (+2#+&(' #8' "#' "+' 81--'
9"&'' $+' $.$ '+' $--' 5&,+#'+' &9!&2"' ")#+&' *)#+&' .)"+' $,&' +$4&('
@?' ") +' !' $'(' 8' $"' ")&' %&' #8' ")&' 3 +2#+ "#'' @?' +1!)' #%N
% ++#'&,6' '' ")&' $+&' #8' $'' $!"1$-' &'$''' '' $-6' ")&,&' +)$--' @&' $'
5,#"&!"#,6' $'(' +1!)' 5,#"&!"#,' +)$--' '#' !#'+&'' "#' ")&' 3 +2#+ "#''
@?' +1!)' #%% ++#'&,6' $'(' +1!)' $!"1$-' &'$''' '' $-6' 8')&')$(' '#'
@&&'' $(>1(.&(' $':,12"6' *#1-(' '#' * ")#1"' +1!)' #'+&'')$4&'
@&&'' !2@-&' 1'(&,' ") +' !' #8' !#'8 ,% '.' ")&' 4# ($@-&' +"$"&' "#' "+'
81--' 9"&'' ")&'' $'(' '' +1!)' $+&' +1!)' 3 +2#+ "#'' +)$--')$4&' ")&'
>8-8&!"' #8' !#'8 ,% '.' +1!)' 4# ($@-&' +"$"&' +#' 8$,' $+' +1!)' $!"1$-'
&'$''' '' $-6' 8')&')$(' '#' @&&'' $(>1(.&(' $' $':,12"6' !#1-(' $"
")&' %&' #8' +1!)' 3 +2#+ "#'')$4&' @&&'' !$2$@-&' 1'(&,' ") +' !' #8'
!#'8 ,% '.' ")&' +$%&' * ")#1"' +1!)' #'+&'' $'(' 8' $"' $'?' %&'
$8"&,' ")&' 3 +2#+ "#'' #8' +1)' $'(+' @?' +1!)' #%% ++#'&,6' $'(' *) -&'
#'-?' $' $+&' &&' +)$--' @&' +1@+ +" '.' '' +1!)' $'(+6' ")&,&' +)$--' !&$+&'
"#' @&' $' 5,#"&!"#,' #8' +1!)' &""-&%&'"6' $'(' +1!)' 5,#"&!"#,' +)$--' '#'
)$4&' !#'+&'"&(' "#' ")&' 3 +2#+ "#'' @?' +1!)' #%% ++#'&,6' ")&'' $'('
'' +1!)' $+&' +1!)' 4# ($@-&7' +"$"&6' +#' 8$,' $+' ")&' +$%&' %$?' '#')$4&'
@&&'' 2,&4 #1+-?' !#'8 ,%&(6' +)$--' @&' !#'8 ,%&(' "#' "+' 81--' 9"&'' $+'
$.$ '+' $--' 5&,+#'+' &9!&2"' ")#+&' *)#+&' .)"+' $,&' +$4&(' @?' ") +'
!"]' 5,#4 (&(' $-*$?+6' ")$"' 8' ")&' 3 +2#+ "#'' @?' $'?' +1!)' #%N
% ++#'&,' $+' $8#,&+$ (' +)$--' @&' %$(&' "#' $' 51,!)$+&,' 8#,' 4-1@-&
#'+ (&,$"#'6

#'+ (&,$" #'6 *)# +)$-' '#")$4& &92,&++ #" !& #8 ")& 4# ($@-& +"$"&6 ")&' $'(' ' +1!)' $+& ")& 4# ($@-& +"$"& +)$-' '#" @& !#'8 ,%&(' $.$ '+" +1!)' 51,!)$+&,' $'(' ")& 5&,+#'+ !-$ % '.' 1'(&,') %

' '(' @& "81,")&,' &'$!"&(6)$" $-' !"+ $'(' 3&&"-+ (#'& $'(' &9&!1"&(' @? $ &'$'" ' $ - #8 $'(+ #8 $'? &'1,&A Z" ' +)$-' @& $(>1(.&(' $ $':,12" 1'(&,' $'? +1!)' $" $+ $8#,&+$ (6 $1(' *) !)' +)$-' $88&!" +1!)' $'(+ #,' $'? #8 ")&%6 $'(' *) !)6 8)&)$(' @&&" +& +&(' #8 #,' &'" "-&(' "# +1!)' $'(+ ' && %2-& $@+#-1"&6 *#1-(')$4& @&&" 4# (' $.$ '+" ")& ++ .'&&+ #8 ")& $':,12";+ +"$"&6 $'(' $-' 5&,+#'+ !-$ % '.' 1'(&,' ")&%6 +)$-' @& 4# (' $.$ '+" $'? 3 +2#+: #" *) !)' %$? @& %$(& #8 +1!)' $'(+ 1'(&,' ") + !" @? +1!)' #%% +' + #'&,' $+ $8#,&+$ (

H3E .'2 O2#]/IC3 D#2#3 # 2 7 F G 242 #E3 2#6 * EC E 3 # I#GD/ 3" E H3 O6 3"D (O O E^ E #D/

< ' 5,#4 (&(' $-*$?+6 $'(' @& "81,")&,' &'$!"&(6)$"6 +1@>&!" $'(' * ")#1" 5,&>1(!& "# ")& 5#*&,+ #8 3 +2#+ "#" . 4&" @? ") + !" "# ")& #%% ++ #'&,' $!" '.' ' ")& 9&!1" #" #8 $'? +1!)' $" $+ $8#,&+$ (' 1'(&,' *) !)' $ 5&,+#" @& '.6 #,' @&8#,& j :$) '.') + &," 8 !$"& @&!#% '.6 $" $!"1$-' &'$'" ' $ - #8 $'(+ #8 $'? &'1,&6 #,' $ &'$'" ' $ - &'" "-&(' "# $ $+& && ' $'(+ ' $'? &'1,& +)$-' @& $(>1(.&(' $ $':,12"6 $'(' $-+# +1@>&!" $'(' * ")#1" 5,&>1(!& "# ")& +"$"& ' +1!)' $'(+ *) !)' %$? @& 4&+"&(' ' ")& ++ .'&&+ #8 ")& $':,12";+ +"$"&6 $'(' $-+# +1@>&!" $'(' * ")#1" 5,&>1(!& "# ")& .)"+ #8 $-' 5&,+#'+ !-$ % '.' 1'(&,' ")Z +$ (' ++ .'&&+ ' ,&+2&!" #8 +1!)' $'(+ #,' $'? #8 ")&%6 +"!@ $!"1$-' &'$'" ' $ -6 #,' &'$'" ' $ - +# &'" "-&(' $+ $8#,&+$ (6 +)$-')$4& ")& +$%& 5#*&,+ #8 3 +2#+ "#" 1'(&,' ") + !" ,-' ,&.$,(' "# +1!)' $'(+ $+)& *#1-(')$4&)$(' 8)&)$(' '#" @&!#%& @$':,12"

IO5DH3 3 '3"D A 36D/E 4 FD# 3 ' 3X D (O ' C EE #D/! 2#G 3 ' 3"D E323D # 3"D EE 4#DDE! 2 O2#]/IC3 D^ #2#3 # 2 7 E7 27! /D32 # O E ZD/E .' * EC E 3 #

< ' '(' @& "81,")&,' &'$!"&(6)$" $'? 3 +2#+ "#" 1'(&,' ") + !" #8 $'(+ #8 $'? &'1,& @? $'? #%% ++ #'&,' $!" '.' ' ")& 9&!1" #" #8 $'? +1!)' $" $+ $8#,&+$ (' 1'(&,' *) !)' $ 5&,+#" @& '.6 #,' @&8#,& #@"$ '.') + &," 8 !$"& @&!#% '.6 $" $!"1$-' &'$'" ' $ - #8 +1!)' $'(+6 #,' $ &'$'" ' $ - &'" "-&(' "# $ $+& && ' +1!)' $'(+ +)$-' @& $(>1(.&(' $ $':,12"6 +)$-6 $-")#1.)' ")& $':,12" @& (&$(' $" ")& %& #8 ")& 3 +2#+ "#'6 @& ' ")& "@-B -#* '.' $+&+ $+ 4$- ($'(' &88&!"1$-' $+ ")& +$%& *#1-(')$4& @&&'6 $'(')$4& ")& +$%& 2&,$"#" 1'(&,' ") + !" $+ ")& +$%& *#",-(')$4&)$(6 8 ")& $':,12" *&,& $- 4&' X")$" +"# +$?6[' !$+& $" ")& %& #8 ")& $':,12";+ 3&!&$+& ")&,& +)$-' @& '# 5,#"&!"#,' #8 ")& &""-&%&'" @? *) !)' ")& +"$"& $ - #8")& $!"1$-' &'$'" ' $ -6 #,' ")& +"$"& $ - !#'4&,"&(' '"# $ $+& &&6 $+ ")& $+& %$? @&6 *$+ !,&$"&(' ' #,' ' !$+& ")& $':,12")$(' @&&" $" $!"1$-' &'$'" ' $ - #8 +1!)' $'(+ $'(+6 $'(' ")&,& +)$-' @& "$" +)$-' ")& %& #8 ")& 3 +2#+ "#" @& $'? ++1& ')&, "$@-& "# ")& +"$"& $ - #8 ")& $':,12" ' +1!)' $'(+6 $'(' ")&,' '# 5,#"&!"#,' #8")& &""-&%&'" @? *) !)' ")& +"$"& $ - *$+ !,&$"&(6 #,' $ 5,#"&!"#,' #8 +1!)' &""-&%&'" *)#6 ' ")& $'&,' ,&C1 ,&(' @? ") + !"6 +)$-' !#'+&'" "# ")& 3 +2#+ "#'6=#,' $ 5,#"&!"#,' #8 +1!)' &""-&%&'" *)# +)$-' '#" !#'+&'" "# ")& 3 +2#N + "#" ' #,' '6 !$+& ")& $':,12")$(' @&&" $ &'$'" ' $ - &'" "-&(' "# $ $+& && ' +1!)' $'(+6 $'(' ")&,& +)$-' @& '# %& #8 ")& 3 +2#+ "#" @& $'? ++1& *)# 8 ")& $+& &&)$(' '#" @&&" !,&$"&7f

"D * EC E ^ 3 # O6 3"D (O O EE #^ D/ .'3"D 2#GE .'2 O2#]/IC3 D^ #2#3 # 2 7 E"277! .'3"D 2#]/IC3 OD GD2G! "2FD # 3"D (2EDE "D/D # O D#^ 3 #DG 3"D E2 O D 'CD/2^ 3 # 2E .'"D ZD/D 27 FD

$ ' L' B ' % (2C'

*#1-(')$4&' @&&'' $!"1$-' &'$'" '' $ -' #8' +1!)' $'(+6' $'(' & ")&,' ,@ 5,#"&!"#,' #8'")&' &""-&%&'" @?' *) !)' ")&' +"$"&' $ -' !#'4&,"&(' '"# $' $+&' &&' *$+' !,&$"&(6' #,' $' 5,#"&!"#,' #8' +1!)' &""-&%&'" *)#6' '' ")&' $''&,' ,&C1 ,&(' @?' ") +' !"6' +)$--' !#'+&'" "#' ")&' 3 +2#+" ."

FD/6' * EC ^
E 3 #' O6' 3 D'
(O O E^
E #D/' .'
(C6" 7G'
2#GE' Z"D/D'
37 D' E323D'
E"27' # 3' OD'
D\ I 32O7D' 3 '
"2FD' 3"D'
E2 O D' ' CD/2^
3 #' 2E' 2'
I / /D#GD/N
2#G' 3"D' +D/^
E #' 3 ' Z" O'
E I H"' 2#G'
E"27' "2FD'
ODD#' G E^
C EDG' .' O26'
H72 O' 3 ' OD'
2G O 33DG' #'
C26 #4' 3"D'
A #DEJ' H

< ' '(' @&' "81,")&,' &'$!"&(6')$"' &4&,?' 3 +2#+"#'' *) !)' 1'(&,' ")8" !" %$?' @&' %$(&' @?' $'?' #%% ++ #'&,' $!" '.' '' ")&' 9&!1" #'' #8' $'?' +1!)' $'' $+' $8#,&+$ (' #8' $'(+')&-(' @?' #2?' #8' #1," #--' +)$--6' ''&4&,?' $+&' '' *) !)' ")&' +"$"&' #8' ")&' $':,12" '' +1!)' $'(+' +)$--' '#" @&' %&,&-?' $'' +"$"&' '' C1 "?6' #2&,$"&' '' ")&' +$%&' $''&,' $+' 8' +1!)' $'(+')$(6' 8#,' ")&' +$%&' +"$"&' *) !)' +)$--')$4&' @&&'' $!C1 ,&(' @?' ")&' 3 +2#+"#'' @?' +1!)' #%% ++ #'&,' $+' $8#,&+$ (6' @&&'' (1-?' +1,,&'(&,&(' '"#' ")&' $'(+' #8' ")&' #,(' #8' ")&' $'#,' #8' *) !)' ")&?' %$?')&' 5$,!&-6' "#' ")&' V+&' #8'")&' 5&,+#'' "#' *)#%' ")&' +$%&' +)$--')$4&' @&&'' (+2#+&(' #8' @?' +1!)' #%% ++ #'&,' $'(' ")&' 5&,+#'' "#' *)#%' ")&' $'(+' +)$--')$4&' @&&'' +#' (+2#+&(' #8' @?' +1!)' #%% ++ #'&,' %$?' !-$ %' "#' @&' $(% ""&(' &'$'" #8' +1!)' $'(+6' "#')#-(' ")&' +$%&' @?' ")&' $'! &'" &'"+6' 1+"#%+6' $'(' &,4 !&+6' '' ")&' +$%&' $''&,' $+' 8' +1!)' $'(+')$(' @&&'' (1-?' +1,,&'(&,&(' "#')+' V+&' '"#' ")&' $'(+' #8' ")&' #,(' #8' ")&' $'#,' #8' *) !)' +1!)' $'(+' %$?@&' 5$,!&-6' $'(' +)$--6' 12.'' @&' .' $(% ""&(' &'$'" #8' +1!)' $'(+6' "#')#-(' ")&' +$%&' $+' $8#,&+$ (6' 2$?' ")&' '&+6' &&+6' $'(' #")&,' 31&+' *) !)' !#1-(')$4&' @&&'' -$*81--?' (&%$'(&(' 12#'' +1!)' (% ""$'!&' 8' +1!)' $'(+')$(6' 8#,' ")&' +$'>&' +"$"&' *) !)' +)$--')$4&' @&&'' $!C1 ,&(' @?' ")&' 3 +2#+"#'' @>7 +1!)' #%% ++ #'&,' $+' $8#,&+$ (6' 2$++&(' @?' 1,,&'(&,' '"#' ")&' $'(+' #8' ")&' #,(6' "#' ")&' V+&' #8' ")&' 5&,+#'' +#' $(% ""&(

EE 4#DDE'
3 ' /DH FD/'
=D#3E' .' 3"D'
2#GE' .' 2'
= O] / I C3' .'
Z" H"' 3"D'
(O O E^
E #D/' "2E'
+ ZD/' 3 '
O2]D' * EC ^
E 3 #' 2#G' 3 '
D#. /HD' (^
FD#2#3E!'
#E' .' D#3 37DG'
3 ' 3"D' = D^
FD/E #' " E'
(72 I ED' 3 ' 2C^
C76' 3 ' 27'
M C6" 7G'
2#GEN O I 3'
2E' 3 ' 3"D/'
2#GE!' #76'
3 'E I H"' 2E' 3"D'
(O O E^
E #D/' O26'
G EC ED' .' 2.^
3D/' 3"D' 2#]^
/ I C3 E' * D23"
' ' ' H'

< ' '(' @&' "81,")&,' &'$!"&(6')$"' ")&' &'"+' $'(' 5,#8 "+' #8' $'?' $'(+' #8' *) !)' $,?' #%% ++ #'&,' $!" '.' '' ")&' 9&!1" #'' #8' $'?' +1!)' $'' $+' $8#,&+$ (')$")' 5#*&,' "#' %$:&' 3 +2#+"#'' 1'(&,' ") +' !" +)$--' '' ")&' %&$'" %&' $'(' 1'"-' +1!)' 3 +2#+"#'' +)$--')&' %$(&6' #,' 1'"-' '' +)$--' @&' $+!&,"$ '&(' ")$" +1!)' 3 +2#+"#'' +)$--' '#" @&' ,&C1 ,&(' 8#,' ")&' &'&8 "' #8' ")&' ,&("#,' #8' ")&' 5&,+#'' $(>1(.&(' @$':,12" 1'(&,' ")&' $"6' @&' ,&!& 4&(' @?' ")&' ++.'&&+' #8' ")&' +"$"&' #8' ")&' $':,126' 8#,' ")&' &'&8 "' #8')+' ,&("#,+' $'(' ")&' ++.'&&+' %$?' 2,#!&&(' @?' !"#'' #8' 3&@" 8#,' ")&' &!#4&,?' #8' +1!)' &'"+' $'(' 5,#8 "+6' #,' %$?' (+",$ '' 8#,' ")&' +$%&' 12#'' ")&' $'(+' +1@>&!" "#' ")&' 5$?%&'" ")&,&#8' $'(' $'?' !$--' +)$--' @&' @,#1.)" 8#,' "$:' '.' $'?' +1!)' 3 +",&++' %$?' 2-&$(' ")&' ;&"#' ")&' H&'&,$-' ++1&6' $'(' .' 4&' ")+' !" .,' #")&,' +2&!$-' $""&,' 4 (&'!&6' $'(' $-+#6' ' !$+&' $'?' +1!)' 3 +",&++' +)$--')&' ,&2-&4 &(6' +)$--')$4&' 5#*&,' "#' $4#*' #,' %$:&' !#.' L$'!&' .&'&,$-' '' +1!)' $''&,' $'(' #,' %' $+' $'?' $'(-#,(' %$?' '#*' (#' @?' 4 ,"1&' #8' ")&' "$"1"&' %$(&' '' ")&' -&4&' ")' &$' .' #8' +' $>&+"?' D '.' ")&' &!#'(6' '' "1-&(
' ' ' ' * ' ' ' ' > * ' ' ' ' =

'1 ' " ' 5 ' #,' @?' $'?' #")&,' $*' #,' "$"1"&' '#*' '' 8#,!&' #,')&,&&8' %$(&' *) !)' !#1-(' @&' %$(&' 8#,' ")&' %#,&' &88&!"1$--?' ,&!#4&,' '.' #8' &'" $,,&$,' $'(' +1!)' ++.'&&+6' $'(' ")&' $'(' $'(' ")&' - 88+6' .&'"+6' $'(' &,4$'"+6' +)$--' $-+#')$4&' $--' +1!)' $'(' ")&' +$%&' &%&(&+6' 5#*&,' +6' 5, 4 -&.&+6' $'(' (4$'"$.&+' #8' 2-&$(' '.6' $4#*' '.6' $'(' %$:' '.' !#.' N L$'!&6' $'(' @&' &'"-&(' "#' ")&' +$%&' #+"+' $'(' 3$%$.&+6' $'(' ")&' +$%&' &%&(&+' 8#,' ")&' &!#4&,?' ")&,&#86' $+' $'(-#,(+' ")&' $ - 88+6

U .&'"+6 $'(&,4$'"+6 $,&B'#*#,)&,&$8"&, %$?@&'@? $*&'""-&(
"#)$4&6*)&' &'" + '$,,&$, $'(+1!) ++ .'&&+ +)$-- $-+#)$4&
")& +$%& 5#*&, $'(1")#, "? #8 &'8#,! '.")& @+&,4$'!& #8 $--
#4&'$'"+6 #'("#'+6 $'(.,&&%&'"+ ,&+2&!" #8 ")& $'(+ #8
) !) +1!) #%% ++ #'&, $+ $8#,&+$ ( )$") ")& 5#&, #8 3 +2#+ "#'
1'(&, ") + !"6 $'(,&+2&!" #8")& &'"+ $'(5,#8 "+ ")&,&#87 $'(
#8 '",? '"# $'(12#' ")& +$%& $'(+ 8#, ")& #'#@+8&,4$'!& #8
$'? +1!) #4&'$'"6 #'("#'6 $'(.,&&%&'"6 $'(#8 &92&-- '.$'(
$%#4 '. ")&,&8,#% ")& &'$'"+ #, #")&, !!12 &,+ ")&,&#86 $'(
")&,&@? (&"&,% '.$'(21"" '.$' '("# ")& +"$"& #8 ")& 5&,+#'+
*)# +)$-- '#")$4& #@+&,4&('+1!) #4&'$'"+6 #'("#'+6 $'(.,&&B
%&'"+6 $+ ")& $':,12" *#1-( )$4&)$(!$+&)&)$('#" @&&'
$(>1(.&($ $':,12"] 5,#4 (&($-*$?+6 ")$" ") + -$1+& +)$-- $22-?
"# $-- $'(+)&-(@? #2? #8B #1," #--6 @1" +)$- '#'-? $22-? "#
")#+& $'(+ #8 $'? #")&, &'1,& *) !) $'? #%% ++ #'&, $!" '. '
")& 9&!1" #' #8 $'? +1!) $" $+ $8#,&+$ (%$?)$4&B5#*&, "#
(+2#+&#8 1'(&, ") + !" $8"&, ")& $':,12";+ 3&!&$+&

K < '(@& "81,")&, &'$!"&( )$" $-- ")& 5,#4 + #'+ '") + 7 3"D +/
!" !#'"$ '&(8#, ")& &'&8 " #8 ")& ,&("#,+ #8 5&,+#'+ *)# 1'(&,
+1!) $"+ $+ $8#,&+$ ('+)$--@& $(>1(.&($':,12"+ $8"&, ")&) ,"?B8 ,+" 7<$':,12"+
3$? #8 ' *" '& ")#1+$'(& .)")1'(,&($'("@ ,"?B"@,&&6 $'(E"27 2CC76 3
8#, ")& #'8 ,%$" #' '!#'+&C1&'!& #8 $':,12"!?#8 4# ($@-& +"$"&+ ")', 2#GE
!,&$"&(@? ")&%6 +)$-- &9"&'($'($22-? "# ")& $'(+ #8 $'? &, " ,& /D72#G
' #8 +1!) 5&,+#'+ $+ 81--? $'(&88&!"1$--? $+ 8 ") +6 !")$(
"),#1.)#1" &9"&'(&("# $'(+ #8 $'? &'1,& - +$4 '.
$-*$?+ ")& .)"+ #8 ")& D '.;+ %#+" 9!&--&'" $>&+"?6 + & ,+
$'(1!!&++#,+6 "# $'? &4&,+ #' #, &%$ '(&, ' ")& ,#*' '
$'(+ '

5,#4 (&($-*$?+6 $'(@& "81,")&, &'$!"&( )$" '$-- $+&+ *DDGE /D723^
#8 $':,12"!?6 &4&,? 3&&(#8 3 +2#+ "#' 1'(&, ") + !" #8 $'(+ #4 3 3"D
' @? $'? #%% ++ #'&, $!" '. ' ")& 9&!1" #' #8 $'? +1!) 2#GE .
$" $+ $8#,&+$ (6 $'($-+# &4&,? 3&&(@? *) !) ")& 5,#"&!"#, #8 $ 2#]/IC3E #
&""-&%&'" #8 $'(+ ' +)$-- !#'+&'"6 +)$-- @& ',#--&(' + /D72#G 3 OD
$>&+"?;+ .) #1," #8)$'!&,? ' *") ' 9 $-&'($, #/ 77DG #
#'")+ $8"&, ")& 9&!1" #' ")&,&#86 $'('#" ' + $>&+"?;+ .) 3"D (I/3 .
#1," #8)$'!&,? '. , (O2.3HD/6 3"D/D

'(@& "81,")&, &'$!"&( )$" $8"&, ")&) ,"?B8 ,+" 3$? =DCD27 .'"D
#8 ' *" '& ")#1+$'(& .)")1'(,&($'(") ,"?B"),&& $' !" 32.I7D '
2$++&(' ")& &4&'") &$, #8 ")& & . ' #8 + -$"& $>&+"? D '. D D&HDC3
")& #1,")6 '"1-&(2E 3 +/ ^
,5 , 1 6) B HDDG #4E
0 H&#,.& 5 U > !#%&'!&(
S . . $ 5 F OD. /D
* + > +)$-- @& $'(")& +$%& 7E3,2# Q
+)&,&@? ,&2&$-&(6 &9!&2" $+ "# +1!) 5,#!&&('.+ 1'(&, ")& !"
)&,&@? ,&2&$-&($+ +)$--)$4& @&&' !#%%&'!&(@&8#,& ")& ,+" 3$?
#8& '& ")#1+$'(& .)")1'(,&($'(") ,"?B8#1,6 $'(*) !)
%$? @& !#'" '1&(1'(&, ")& 1")#, "? $'($!!#,('. "# ")& 5,#N
4 + #'+ #8 ")& !")&,&@? ,&2&$-&(] 5,#4 (&($-*$?+6 ")$" ")& !" U
,&2&$-&(@? ")& +$ (!" #8 ")& &4&'") &$, #8 + D VT # 3 3
-$"& $>&+"? D '. ")& #1,") +)$-- '#" @& ,&4 4&(OD /DF FDG
'(

"D' C/DF IE'
(72IEDE!' Z 3"'
HD/32 #' 2/ 2^
3 #E!' 3 ' 2C^
C76' 3 ' 2#GE'
.'2#6' D#I/D'
3 ' OD' E 7G!'
Z"D/D' 3"D'
+I/H"2ED'
B #D6' E'
EIO5DH3' 3 ' OD'
#FDE3DG' #'
3"D' +I/H"2ED'
.' 2IGE' 3 '
OD' D#32 7DG!'
2#G' 27E ' 3 '
2CC76' 3 '
B #D6'
EIO5DH3' 3 ' OD'
#FDE3DG' #'
7]D' B 2##D/

' '('@&' "'81,")&8'&'$!"&(>')$"' $'(+'"#'@&' +#-(6' *)&")&,' ,&&)#-('#,' &$+&)#-(6'#,'#8'$'?'#")&,' &'1,&6' *)&,&'")&' #'&?'$, + '.' 8,#%' ")&' $-&'")&,&#8'+)$--'@&' +1@>&!"'"#'@&' '4&+"&(' '' ")&'51,!)$+&'#8' $'(+' "#' @&' +&""-&(6' +#' ")$"' $'?'5&,+#'6' 8'")&' $'(+' *&,&'21,!)$+&(6' *#1-(')$4&'$'' +"$"&' $ -'")&,& '6' $'(' $-+#' #'&?' +1@>&!"' "#' @&' 'N 4&+"&(' '' ")&' 51,!)$+&' #8' $'(+'"#' @&' +&""-&(6' +#' ")$"' $'?' 5&,+#'6' 8' ")&' $'(+' *&,&'21,!)$+&(6' *#1-(')$4&' $'' +"$"&' $ -'")&,& '6' +)$--' 8#,' $--' ")&' 51,2#+&+' #8' ") +' !"' @&' ",&$"&(' $+' ")&' $'(+' "#' @&' 21,N !)$+&(6' $'('@&' !#'+ (&,&(' +1@>&!"' "#' ")&' +$%&' +"$"&+' $+' ")&' $'(+' "#' @&' 21,!)$+&(' *#1-(6' 8'21,!)$+&(6')$4&' @&&'' $!"1$--?' +1@>&!"' "#'>' $'(' $--' ")&' 2,&4 #1+' -$1+&+' '' ") +' !"6' +#' 8$,' $+' ,!1%+"$'!&+' * --' $(% "6' +)$--6' '' ")&' $+&' #8' ")&' $'(+' "#' @&' +#-(' $+' $8#,&+$ (' @& '.' & ")&,' ,&&)#-(' #,' &$+&)#-(6' #,' #8' $'?' #")&,' &'1,&6' &9!&2"' #2?' #8' #1,"' #--6' $22-?' "#' +1!)' $2(+' '' ")&' +$%&' $''&,' $+' 8'")&' $'(+' "#' @&'21,!)$+&(' * ")' ")&' #'&?' "#' $, +&' 8,#%' ")&' $-&' ")&,&#8' *&,&' K(,&!"&(' "#' @&' ,&&)#-(6' $'(' *&,&' $!"1$--?' 21,!)$+&(' $'(' +&""-&('>' $'(' +)$--6' '' ")&' $+&' #8'")&' $'(+' "#' @&' +#-(' $+' $8#,&+$ (' @& '.')&-(' @?' #2?' #8' #1,"' #--6' $22-?' "#' $1!)' $'(+' '' ")&' +$%&' $''&,' $+' 8'")&' $'(+' "#' @&'21,!)$+&$' * ")' ")&' #'&?' "#' $, +&' 8,#%' ")&' $-&' ")&,&#8' *&,&' (,&!"&(' "#' @&' #2?)#-(6' $'(' *&,&' $!"1$--?' 21,!)$+&(' $'(' +&""-&(' ' $'(' +)$--6' '' ")&' $+&' #8' #'&?' +1@>&!"' "#' @&' '4&+"&(' '' ")&' 51,!)$+&' #8' $'(+' "#' @&' +#' +&""-&(' $+' $8#,&+$ (6' $22-?' "#' +1!)' #'&?' '' ")&' +$%&' $''&,' $+' 8' +1!)' #'&?' *&,&' (,&!"&(' "#' @&' -$ (' #1"' '' ")&' 51,!)$+&6' #8' ,&&)#-(' $'(+6' $'(' +1!)' $'(+'6' *&,&' $!"1$--?' 21,!)$+&(' $'(' +&""-&(' +$4&' $'(' &9!&2"' ")$"' '' &4&,?' $+&' *)&,&' 1'(&,' ") +' -$1+&' $' 3 +2#+ " #'' +)$--' @&' "#' @&' %$(&' #8' &$+&N)#-(' $'(+' 8#,' &$,+' $@+#-1"&' #,' (&"&,% '$@-&6' +#' ! ,!1%+"$'!&(' $+' $8#,&+$ (6' #,' #8' #'&?' +#' ! ,!1%+"$'!&(' $+' $8#,&+$ (6' +1!)' &$+&)#-(' $'(+' #,' #'&?' +)$--6' $+' "#' ")&' 5&,+#'' '' *)#+&' $4#1,' #,' 8#,' *)#+&' &'&8 ' ")&' 3 +2#+ " #'' +' "#' @&' %$(&6' @&' ",&$"&(' $+' 5&,+#'$-' +"$"&6' $'(6' &9!&2"' '' !$+&' #8' $':,12"!?6' ")&' ++1,$'!&' @?' *) !)' ")&' 3 +N 2#+ " #'' #8' +1!)' &$+&)#-(' $'(+' #,' #'&?' +)$--' @&' &88&!"&(' +)$--' @&' $'' ++ .'%&'' @?' 3&&(6' *) !)' +)$--')$4&' '#' 2&,$" #'' 1'(&,' ") +' !"' 1'-&++' ',#--&(' '' +' $>&+"?;+' .)' #1," #8')$'!&,?' * ") '' 9' $-&'($,' #'")+' $8"&,' ")&' 9&!1" #''")&,&#8 ' $'(' '' &4&,?' $+&' #8' $':,12"!?' ")&' 3 +2#+ " #'' #8' +1!)' &$+&)#-(' $'(+' #,' #'&?' +)$--' @&' %$(&' @?' ")&' #%% ++ #'&,6' $'(' !#%2-&"&(' @?' ',#-%&'' ' ")&' +$%&' $''&,' $+')&,& 'B &8#,&' ,&C1 ,&(' '' ,&.$,(' "#' $'(+' '#")&-(' @?' #2?' #8' #1," #--

' '('@&' "'81,")&,'&'$!"&(')$"'+#'8$,'$+',&.$,(+'$'?'5&,+#'' $(>1(.&(' $' $':,12"'1'(&,'$'?'+1!)' $"' $+' $8#,&+$ (6'")&' 5,#4 + #'+' #8' ")&' -$1+&' -$+"-?')&,& 'B@&8@,&' !#'"$ '&('+)$--6' 8#,' ")&' &'&8 ' #8' ")&' ,&("#,+' #8' ")&' $':,12"6' $22-?' "#' $'(+' '' '"#' @&' +#-(6' *)&")&,' ,&&)#-(' #,' &$+&)#-(6' #,' #8' $'?' #")&,' &'1,&6' *)&,&' ")&' #'&?' $, + '.' 8,#%' ")&' $-&' ")&,&#8' +)$--' @&' +1@>&!"' "#' @&' '4&+"&(' '' ")&' 51,!)$+&' #8' $'(+' "#' @&' +&""-&(' +#' ")$"' ")&' $':,12"6' 8' ")&' $'(+' *&,&'21,!)$+&(6' *#1-(')$4&' $'' +"$"&' $ -' ")&,& '6' $'(' $-+#' "#' #'&?' 1'(&,' ")&' #'",#-' #8' $'?' #1," C1 "?' '' ' #,' #8' #,' "#' *) !)' $'?' '(4 (1$-+' $+' ,1+"&&+' %$?' @&' 2#++&++&(' #,' &'" "-&(' '' ' $'(' *) !)' +)$--' @&' +1@>&!"' "#' @&' '4&+"&(' '' ")&' 51,!)$+&' #8' $'(+' "#' @&' +&""-&(' +#' ")$"' ")&' $':,12"6' 8' ")&' $'(+' *&,&' 21,!)$+&(6' *#1-(')$4&' $'' +"$"&' $ -' ")&,& '6' $+' 81--?' $'(' &88&!"1$--?' $+' 8' ") +' !"')$('")&,#1.)#1"' &9"&'(&(' "#' ' 5,#N 4 (&(

2#GE' .'2#6'
D#I/D' #'
/D72#G!' 3 ' OD'
E 7G!' Z"D/D'
3"D' +I/H"2ED'
B #D6' E'
EIO5DH3' 3 ' OD'
#FDE3DG' #'
3"D' +I/H"2ED'
.' 2#GE' 3 '
OD' D#32 7DG!'
2#G' B #D6'
I#GD/' 3"D'
(#3/ 7 .'2'
(I/3' .'
\I 36' #'
/D72#G!' EIO

L ʼ ʼ K B ʼ ʼ (2C T

4 (&(ʼ $-*$?+6ʼ ")$"ʼ &4&,?ʼ 3&&(ʼ "#ʼ @&ʼ &9&!1"&(ʼ @?ʼ $'?ʼ #%,$ ++ # >&,ʼ
#,ʼ 5,#"&!"#,6ʼ ʼ 21,+1$'!&ʼ #8ʼ ") +ʼ -$1+&6ʼ ʼ ,&.$,(ʼ "#ʼ $'(+ʼ ʼ
ʼ "#ʼ @&ʼ +#ʼ +#-(ʼ $+ʼ $8#,&+$ (6ʼ +)$--ʼ @&ʼ ',#--&(ʼ ʼ +ʼ B25DE36aE
.)ʼ #1,"ʼ #8ʼ)$'!&,?ʼ ʼ ʼ *") ʼ 9ʼ $-&'($,ʼ #'")+ʼ
$8"&,ʼ ")&ʼ 9&!1" #'ʼ ")&,&#8ʼ @1"ʼ &4&,?ʼ 3&&(ʼ "#ʼ @&ʼ &9&!1"&(ʼ @?ʼ 8"#?ʼ
#%% ++ #'&,ʼ#,ʼ 5,#"&!"#,6ʼ ʼ 21,+1$'!&ʼ #8ʼ ") +ʼ -$1+&6ʼ ʼ ,&.$,(ʼ "#ʼ
#'&?ʼ +1@>&!"ʼ "#ʼ @&ʼ '4&+"&(ʼ ʼ ")&ʼ 51,!)$+&ʼ #8ʼ $'(+ʼ " ʼ @&ʼ ʼ
+&""-&(ʼ $+ʼ $8#,&+$ (6ʼ +)$--ʼ @&ʼ ',#--&(ʼ ʼ +ʼ $>&+"?;+ʼ .)ʼ #1,"ʼ #8ʼ
)$'!&,?ʼ ʼ . ʼ *") ʼ 9ʼ $-&'($,ʼ #'")+ʼ $8"&,ʼ ")&ʼ &DHI^
"#'ʼ ")&,&#8ʼ $'(ʼ '#"ʼ ʼ +ʼ $>&+"?;+ʼ .)ʼ #1,"ʼ #8ʼ)$'!&,?ʼ ʼ
-ʼ +$4 '.ʼ $-*$?+ʼ ")&ʼ .)"+ʼ #8ʼ ")&ʼ D '.;+ʼ %#+"ʼ 9!&--&'"ʼ
$>&+"?6ʼ +ʼ & ,+ʼ $'(ʼ 1!!&++#,+6ʼ "#ʼ $'?ʼ &4&,+ #'ʼ #,ʼ &%$ '(&,ʼ
ʼ ")&ʼ ,#*ʼ ʼ $'(+ʼ ʼ ʼ "#ʼ @&ʼ +#-(

ʼ '(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(6ʼ)$"ʼ $'?ʼ 1-&ʼ #,ʼ +/2H3 HDʼ 8 A +"#ʼ 5&&(+
C1 , '88ʼ 3&&(+ "#ʼ @&ʼ $!:'#*-&(.&(ʼ @&8#,&ʼ ',#-%&'"ʼ +)$--ʼ # 3ʼ $22-?ʼ
"#ʼ $'?ʼ 3&&(ʼ @?ʼ ") +ʼ ʼ !"ʼ ,&C1 ,&(ʼ "#ʼ @&ʼ ',#--&(ʼ ʼ +ʼ
.)ʼ #1,"ʼ #8ʼ)$'!&,?ʼ ʼ . ʼ#,ʼ , Q &'"

<ʼ '(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(6ʼ)$"ʼ &4&,?ʼ 3&&(ʼ /D\I /DGʼ 3ʼ 5FD.6 *DDG
@&ʼ ',#--&(ʼ ʼ +ʼ $>&+"?;+ʼ .)ʼ #1,"ʼ #8ʼ)$'!&,?ʼ ʼ ʼ !ʼ 3ʼ ODʼ #/ 77DG
ʼ @?ʼ *) !)ʼ $'(+6ʼ #,ʼ #'&?ʼ +1@>&!"ʼ "#ʼ @&ʼ '4&+"&(ʼ ʼ ")&ʼ O6ʼ ZO HO
51,!)$+&ʼ #8ʼ $'(+6ʼ +)$--ʼ @&ʼ (+2#+&(ʼ #8ʼ 1'(&,ʼ ") +ʼ !"6ʼ +)$--6ʼ Z"D# ,233GE G/
',#--&(ʼ $+ʼ ,&C1 ,&(ʼ @?ʼ ") +ʼ !"6ʼ #2&,$"&ʼ $'(ʼ "$:&ʼ &88&!"ʼ #ʼ ")&ʼ E2ODʼ #'&?
$''&,ʼ $+ʼ ʼ *#1-(ʼ)$4&ʼ (#'&ʼ 8ʼ ")&ʼ ',#-%&'"ʼ ")&,&#8ʼ)$(ʼ # 3ʼ ODD#ʼ E"277 DʼGE^
,&C1 ,&(6ʼ &9!&2"ʼ ")$"ʼ &4&,?ʼ +1!)ʼ 3&&(ʼ +)$--ʼ @&ʼ 4# (ʼ 242 #E3ʼ 2#6ʼ C EDG .ʼ IC
5&,+#'ʼ !-$% '.ʼ ")&ʼ $'(+ʼ #,ʼ #'&?ʼ ")&,&@?ʼ (+2#+&(ʼ #86ʼ #,ʼ GD/ 3" E H3!
$'?ʼ 5$,"ʼ ")&,&#86ʼ 8#,ʼ 4-1@-&ʼ #'+ (&,$"#'6ʼ 1'(&,ʼ $'?ʼ EIOED\ID#3ʼ 3ʼ 32]DʼD..DH3
3&&(ʼ (1-?ʼ ',#--&(ʼ 1'(&,ʼ ") +ʼ !"6ʼ 8ʼ +1!)ʼ +1@+&C1&'"ʼ *DDG +)$--ʼ 2E .7 /G
@&ʼ 8 ,+"ʼ ',#--&(ZD#3 #D3 /D\I /DG

ʼ<ʼ '(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(6ʼ)$"ʼ "ʼ +)$--ʼ @&ʼ 72Z.I7 . / @& (I/3 .ʼ
+ʼ $>&+"?;+ʼ .)ʼ #1,"ʼ #8ʼ)$'!&,?ʼ ʼ . ʼ $+ʼ "#ʼ 3&&(ʼ ʼ "#ʼ @&ʼ
',#--&(ʼ ʼ . ʼ 1'(&,ʼ") +ʼ !"6ʼ $'(ʼ 8#,ʼ +ʼ $>&+"?;+ʼ .)ʼ V1,"ʼ "#7@&
#8ʼ)$'!&,?ʼ ʼ ʼ $+ʼ "#ʼ 3&&(+ʼ "#ʼ @&ʼ ',#--&(ʼ ʼ 1'(&,ʼ 2$ (ʼ 8#,ʼ "@
") +ʼ !"6ʼ 8,#%ʼ %&ʼ "#ʼ %&ʼ "#ʼ %$:&ʼ +1!)ʼ ,(&,+ʼ 2 ʼ ")&ʼ #1,"ʼ E"277 ,#-%&'"ʼ .ʼ
") ':ʼ 8"ʼ "#1!) '.ʼ ")&ʼ %#1'"ʼ #8ʼ ")&ʼ &&+ʼ $'(ʼ)$,.&+ʼ "#ʼ @&ʼ 2$ (ʼ
8#,ʼ ")&ʼ ',#-%&'"ʼ #8ʼ +1!)ʼ 3&&(+6ʼ $'(ʼ "#ʼ @&ʼ 2$ (ʼ 8#,ʼ &$,C)&ʼ 8#8ʼ
+1!)ʼ 3&&(+ʼ ʼ ")&ʼ 88 !&ʼ #8ʼ ',#-%&'"+6ʼ $'(ʼ "#ʼ @&ʼ 2$ (ʼ 8#,ʼ (CDE .ʼ
")&ʼ ',#-%&'"+ʼ #8ʼ 3&&(+ʼ 1'(&,ʼ ") +ʼ !"6ʼ *)&,&ʼ +1!)ʼ (CDE 2/D
&9$% '&(ʼ *")ʼ ")&ʼ ',#-%&'"+6ʼ $'(ʼ + .'&(ʼ @?ʼ ")&ʼ C/ OD/ '. H /
)$4 '.ʼ")&ʼ 1+"#(?ʼ #8ʼ +1!)ʼ ',#-%&'"+

<ʼ '(ʼ @&ʼ "ʼ 81,")&,ʼ &'$!"&(6ʼ)$"ʼ "ʼ +)$--ʼ @&ʼ -$*81-ʼ . / >E "Dʼ (I/3
$>&+"?;+ʼ #1,"ʼ #8ʼ #%%#'ʼ 5-&$+ʼ $"ʼ / * ./ Oʼ ODʼ "#ʼ 8ʼ #' 3 #'
%&ʼ "#ʼ %$:&ʼ +1!)ʼ ,(&,+ʼ $+ʼ ")&ʼ #1,"ʼ +)$--ʼ ") ':ʼ . 3 3 IH" #4 3"D +7D2E 3 ʼ/D4I^
%#1'"ʼ #8ʼ")&ʼ &&+ʼ $'(ʼ)$,.&+ʼ "#ʼ @&ʼ 2$ (ʼ 8#,ʼ ")&ʼ #3/ DE #8ʼ *DDGE 723Dʼ3" DʼCDDE
@?ʼ") +ʼ !"ʼ ,&C1 ,&(ʼ "#ʼ @&ʼ &'"&,&(ʼ #'ʼ ")&ʼ #1,"ʼ #--+ʼ #8ʼ $'#,+6ʼ 8#, 1"8 &+
$'(ʼ 8#,ʼ ")&ʼ '(#,+&%&'"+ʼ ")&,&#'6ʼ $'(ʼ 8#,ʼ "$: '.ʼ ")&ʼ #'+&'"+ʼ . UUʼ (I/3
")&ʼ 5,#"&!"#,+ʼ #8ʼ &""-&%&'"+ʼ #8ʼ $'(+)&-(ʼ @?ʼ #2?ʼ #8ʼ (I/3 = >! = 77E 2#M, #^
*)&,&ʼ +1!)ʼ #'+&'"+ʼ +)$--ʼ '#"ʼ @&ʼ . 4&ʼ @?ʼ 3&&(6ʼ $'(ʼ 8#,ʼ 32] #4 G /EDOD#3E
1,,&'(&,+ʼ @?ʼ *) !)ʼ 3 +2#+"#'+ʼ +)$--ʼ @&ʼ %$(&ʼ 1'(&,ʼ ") +ʼ !"ʼ @?ʼ UUʼ *DDGE!
&'$"'+ʼ ʼ $-ʼ #8ʼ $'(+)&-(ʼ @?ʼ #2?ʼ #8ʼ #1,"ʼ #-@ʼ $'(ʼ 8#,ʼ #3/ DE 2#G . /ʼ32]^
#8ʼ +1!)ʼ 1,,&'(&,+ʼ #,ʼ ")&ʼ %#,$'(1%+ʼ ")&,&#8ʼ #'ʼ ")&ʼ (I/3 = 77E #4ʼ (#ED#3E!
ʼ #G J ,

' O2// DG
@ O2#!Z 3"
"D/ > I E^
O2#Gæ (#^
H I //D#HD!
3 ' G EC ED .
2#GE 2#G
B #D6 E I O^
5DH3 3 ' OD
#FDE3DG #
3"D +I /H"2ED
. 2 I GE! 2#G
. 2#6 E323D
3"D/D # N 2#G
3 ' /D7D2ED 2#G
D&3 #4 I E"
+ ZD/E! 2E 2
AD/2D 7D

< ' (@& " 81,")&, &'$!"&(6)$" $8"&, ")&) ,"?B8 ,+"
3$? #8 ' *" '&")#1+$'(& .)")1'(,&($'(") ,"?B"),&& "+)$--
@& -$*81- 8#, &4&,? %$,, &(E#%$'6 ' &4&,? $+& &9!&2" ")$" #8
@& '. &'$'" ' $ -6 8#, *) !) 5,#4 + #' + $-,&$(? %$(&@?") + !"6
@? 3&&("# (+2#+& #8 $'(+ #8 $'? &'1,&6 $'(#'&? +1@>&!" "#
@& '4&+"&(' ")& 51,!)$+& #8 $'(+6 $'($-+# "# (+2#+& #86 ,&-&$+&6
+1,,&'(&,6 #, &9" '.1 +) $'? +"$"& *) !) +)& $-#'&6 #, +)&]$'( )&,
1+@$'(')&, .)"6 %$?)$4& ' $'? $'(+ #8 $'? &'1,&6 #, '
$'? +1!) #'&? $+ $8#,&+$ (6 $'($-+# "# ,&-&$+& #, &9" '.1 +) $'?
5#*&, *) !) %$? @& 4&+"&(' #, - % "&(#, ,&+&,4&("#)&, '
,&.$,("# $'? $'(+ #8 $'? &'1,&6 #, $'? +1!) #'&? $+ $8#,&+$ (6
#, ' ,&.$,("# $'? +"$"& ' $'? $'(+ #8 $'? &'1,&6 #, ' $'?
+1!) #'&? $+ $8#,&+$ (6 $+ 81--? $'(&88&!"1$--? $+ +)& !#1-((# 8
+)& *&,& $ &%& #-& +$4& $'(&9!&2" ")$" '# +1!) 3 +2#+ " #'6
&-&$+&6 1,,&'(&,6 #, 9" '.1 +)%&'" +)$-- @& 4$- ($'(&88&!"1$-
1'-&++ ")& 1+@$'(!#'!1, ' ")& 3&&(@? *) !) ")& +$%& +)$-- @&
&88&!"&(6 '#, 1'-&++ ")& 3&&(@& $!:'#*-&(.&(@?)&, $+)&,& 'N

) 3 3 ' D&^
3D#G 3 ' (C6
" 7GE # HD/^
32 # (2EDE

$8"&, (,&!"&(] 5,#4 (&($-*$?+6 ")$" ") + !" +)$-- '#" &9"&'("#
$'(+)&-(@? #2? #8 #1," #-- #8 #, "# *) !) $ %$,, &(E#%$'6
#, +)& $'( )&, 1+@$'(')&, .)"6 %$? @& +& +&(#, &'" "-&(
8#, $' +"$"& $" $*6 ' $'? $+& ' *) !) $'? #8 ")& @>&!"+
"# @& &88&!"&(@? ") + -$1+& !#1-(@&8#,& ")& 2$++ '. #8 ") + !"
)$4& @&&' &88&!"&(@?)&,6 ' !#'!1,,&'!& * "))&, 1+@$'(6 @?
1,,&'(&, '"# ")& $'(+ 28 ")& #,(#8 ")& $'#, #8 *) !) ")&
$'(+ %$? @& 5$,!&-A

"D + ZD/E
. * EC E ^
3 # 4 FD# 3
2 O2// DG
@ O2# O6
3" E H3 # 3
3 ' #3D/.D/D
Z 3" 2#6
3"D/+ ZD/E

< ' 5,#4 (&($-*$?+6 $'(@& " 81,")&, &'$!"&( )$" ")&
5#*&,+ #8 3 +2#+ " #' . 4&' "# Q %$,, &(E#%$'@?") + !"+- $-- '#"
'"&,8&,& * ") $'? 5#*&, E) !)6 2(&2&'(&'"-? #8 ") + !"6 %$? @&
4&+"&(' #, - % "&(#, ,&+&,4&("#)&,6 +# $+ "# 2,&4&'")&, 8,#% &9&,N
! + '. +1!) 5#*&, ' $'? $+&6 &9!&2" +# 8$, $+ @? $'? 3 +2#+ " #'
%$(& @?)&, 1'(&, ") + !" +)& %$? @& 2,&4&'"&(8,#% +# (# '. '
#'+&C1&'!& #8 +1!) 5#*&,)$4 '. @&&' +1+2&'(&(#, &9" '.1 +)&(
@? +1!) 3 +2#+ " #'

FD/6 *DDG
O6 2 O2// DG
@ O2#! # 3
D&DH I 3DG O6
"D/ 2E +/ ^
3DH3 /! 3 ' OD
2H"# F
7DG4DG O6 "D/
OD. /D 2
, I G4D! H

' (@& "81,")&, &'$!"&( )$" &4&,? 3&&("# @& &9&!1"&(
@? $ %$,, &(E#%$' 8#, $"? #8 ")& 51,2#+&+ #8 ") + !"6 &9!&2"
+1!) $+ %$? @& &9&!1"&(@?)&, ' ")&)$,$!"&, #8 5,#"&!"#,
8#, ")& +#-& 51,2#+& #8 . 4 '.)&, #'+&'" "# ")& 3 +2#+ " #' #8 $
&'$'" ' $ -6 +)$--6 12#')&, &9&!1" '. ")& +$%&6 #, $8"&, *$,(+6
@& 2,#(1!&($'($!:'#*-&(.&(@?)&, $+)&, !" $'(3&&(@&8#,&
$ R1(.& #8 #'& #8 ")& +12&, #, #1,"+ $" / * #, $ $+"&,
')$'!&,?6 #, @&8#,& *# #8 ")& 5&,2&"1$- #%% ++ #'&,+6 #,
*# 2&! $- #%% ++ #'&,+6 "# @& ,&+2&!" 4&-? $22# '"&($+)&,& 'N
$8"&, 2,#4 (&(

"D , I G4D!
H OD. /D
/DHD F #4
E I H" H]# Z
7DG4# D#3! 3
D&2 O #D "D/
2C2/3 ./ O
"D/ > I EO2#G

' (@& " 81,")&, &'$!"&( )$" +1!) R1(.&6 $+"&, '
)$'!&,?6 #, #%% ++ #'&,+ $+ $8#,&+$ (6 @&8#,&)& #, ")&? +)$--
,&!& 4& ")& !:'#*-&(.%&'" @? $'? %$,, &(E#%$' #8 $'? 3&&(@?
*) !) $'? 3 +2#+ " #'6 &-&$+&6 1,,&'(&,6 #, 9" '.1 +)%&'" +)$--
@& %$(& @?)&, 1'(&, ") + !"6 +)$-- &9$% '&)&,6 2," 8,#%)&,
1+@$'(6 "#1!) '.)&, D'#*-&(.& #8 +1!) 3&&(6 $'(+)$-- $+!&,"$ '6
*)&")&, +)& 8,&&-? $'(4#-1'"$, -? !#'+&'"+ "# +1!) 3&&(6 $'(
1'-&++ +)& 8,&&-? $'(4#-1'"$, -? !#'+&'" "# +1!) 3&&(+)$-- '#"
2&,% ")&, "# $!:'#*-&(.& ")& +$%& > $'(' +1!) $+& +1!) 3&&(
-# +)$-

$ ' ; B ' ' (2C' W

+)$--6 +# 8$,' $+M,&-$"&+' "# ")&' 9&!1"#'"')&,&#8' @?' +1!)' %$,, &('
E#%$'6 @&' 4# (

' '(' @&' "81,")&,' &'$!"&(')$"8#,' ")&' 51,2#+&' #8' 2,#,'
4 ('.' !2'4&' &'" &$'+' #8' "$: '.' !:'#*-&(.%&'"+' @?' %$,, &('
E#%&'' #8' ")&' 3&&(+' "# @&' &9&!1"&(' @?' ")&%' $+' $8#,&+$ (6' ")&' @8('
) &8'R1+" !&' #8' ")&' #1,"#8' #%%#'' 5-&$+' $" / * '+)$--' 8,#%
%&' "# %&' $22# '"+1!)' 2,#2&,' 5&,+#'+' $+')&' +)$--' ") ':' -"7 8#,'
&4&,?' #1'"?6 ('.6' 3 4 + #'6 #:&6 #,' 5-$!&' 8#,' *) !)' ")&,&' %$?'
@&' $ -&,:' #8' ")&' 5&$!&6 "# @&' 5&,2&"1$-' #%% ++ #'&,+' 8#,' "$: '.'
+1!)' !:'#*-&(.%&'"+6 $'('+1!)' #%% ++ #'&,+' +)$--' @&' ,&%#4$@-&'
@?' $'(' $"")&' 5-&$+1,&' #8' ")&' +$ (' #,(') &8' R1+" !&' $'(' +"+' #8'
")&' $%&+' #8' +1!)' #%% ++ #'&,+' 8#,' ")&' %&' @& '.6' * ")' ")&'
$%&+' #8' ")&,' 5-$!&+' #8' &+ (&'!&6 $'(' ")&' #1'"&+6 ('.+6
3 4 + #'+6 #:&+6 #,' 5-$!&+' 8#,' *) !)' ")&?' +)$--' @&' ,&+2&!" 4%?'
$22# '"&(' "# $!"6 +)$--' 8,#%' %&' "# %&' @&' %$(&' #1" $'(' @&' :#2"
@?' ")&' 88 !&,' #8' ")&' #1," #8' #%%#'' 5-&$+' $" / * ' * ")'
*)#%' ")&' &," 8 !$"&+' #8' ")&' !:'#*-&(.%&'"+' @?' %$,, &(' E#%#8"
$,&' "# @&' -#(.&(' $+')&,& 'B$8"&,' %&'"#'&(' ' $'('+1!)' 88 !&,' @$-'
8,#%' %&' "# %&' ",$'+% "6 * ")#1" &&' #,' &*$,(6 "# ")&' 8&,:'
#8' ")&' 5&$!&' 8#,' &$!)' #1'"?6 ('.6 3 4 + #'6 #:&6 #,' 5-$!&6 #,'
) +' ' $' #2?' #8' ")&' +"# @&' +# 8,#%' %&' "# %&' %$(&'
#1" 8#,' ")$" #1'"?6 ('.6 3 4 + #'6 #:&6 #,' 5-$!&6 $'(' +1 @
88 !&,' +)$--' (&- 4&,' $' #2?6 + .'&(' @?') %6 #8' ")&' +" 8#,' ")&' %&'
@& '.' 8#,' $'?' #1'"?6 ('.6 3 4 + #'6 #:&6 #,' 5-$!&6 "# $'?' +D/E 3
$22-? '.' 8#,' ")&' +$%&' $'(' ")&' -&,:' #8' ")&' 5&$!&' 8#,' &$!)' #1T"?6
('.6 3 4 + #'6 #:&6 #,' 5-$!&6 #,') +' 3&21"?6 +)$--' (&- 4&,' $ 2?_'
+ .'&(' @?') %6 #8' ")&' +"-$+"",$'+% ""&(' "#) %6 $+' $8#,&+$ ('"# $#?
5&,+#'' $22-? '.' 8#,' ")&' +$%&

' 5,#4 (&(' $-*$?+6 $'(' @&' "81,")&,' &'$!"&(')$" $'?
5&,+#'' $22# '"&(' #%% ++ #'&,' 8#,' $'?' 2$," !1-$,' #1'"?6 (8 .6
3 4 + #'6 #:&6 #,' 5-$!&6 +)$--' @&' !#%2&"&'' "# "$:&' ")&' !:'#*-&(.&'
,$&'" #8' $'?' %$,, &(' E#%$'' *)&,&+#&4&,' +)&' %$?' ,&+ (&6 $'(' *)&,&B'
+#&4&,' ")&' $'(+' #,' #'&?' '' ,&+2&!" #8' *) !)' ")&' !:'#*-&(.%&'"
+' "# @&' "$:&' %$?' @&

' '(' @&' "81,")&,' &'$!"&(')$"' '' ")#+&' $+&+' E &"&6
@?' ,&$+#'' #8' &+ (&'!&' @&?#'(' &$+6 #,' --B)&$-")6 #,' $'?' #")&,' +188 N
! &'' $1+&6 $'?' %$,, &(' E#%$'' +)$--' @&' 2,&4&'"&(' 8,#%' %$: '.' ")&'
!:'#*-&(.%&'" ,&C1 ,&(' @?' ") +' !" @&8#,&' $' R1(.&' #,' $ $+"&,' '
)$'!&,?6 #,' $'?' #8' ")&' 5&,2&"1$-' #%% ++ #'&,+' "# @&' $22# '"&(' +
$8#,&+$ (6 "+)$--' @&' -$*81-' 8#,' ")&' #1," #8' #%%#'' 5-&$+' $"
/ * ' #,' $'?' R1(.&' #8' ")$" #1,"6 "# ++1&' $ #%% ++ #''
+2&! $--? $22# '" '.' $'?' 5&,+#''+' ")&,& '' '$%&(' "# @&' #%% ++ #'&,+'
"# "$:&' ")&' !:'#*-&(.%&'" @?' $'?' %$,, &(' E#%$'' "# @&' ")&,&& 8'
'$%&(' #8' $'?' +1!)' 3&&(' $+' $8#,&+$ (' 5,#4 (&(' $-*$?+6 ")$" &4&,?
+1!)' #%% ++ #'' +)$--' @&' %$(&' ,&"1,'$@-&' * ") '' +1!)' %&6 " ' 3 '
")&,& '' &92,&++&(6 $+' ")&' +$ (' #1," #,' R1(.&' +)$--' ") ':' 8 "

<' '(' @&' "81,")&,' &'$!"&(6)$" *)&' $' %$,, &(' E#%$''
+)$--' $!:'#*-&(.&' $'?' +1!)' 3&&(' $+' $8#,&+$ (6 ")&' R1(.&6 $+"&,' '
)$'!&,?6 #,' #%% ++ #'&,' +1!)' !:'#*-&(.%&'" +)$--' +.'
$ &%#,$'(1%6 "# @&' '(#,+&(' #' #,' $"' *""&'' $'")&' ##' #,' '' ")&'
$,.'' #8' +1!)' 3&&(6 *) !)' &%#,$'(1%6 +1@+!" "# $'?' -"&,$" #''
*) !)

E 3 ' 3"D C^
C #3OD#3 .'
+D/CD3I27
(O O EE #^
D/E . / D2H"
(I#36 /
+72HDJ 2#G
3"D O2] #4
I3 2#G]DDC^
#4 .' 3"D
E3E .' 3"D
(O O EE #^
D/E 2#G 3"D
*D7 FD/6 .'
(C DE!

+ ZD/ .+D/'
CD3I27 (O'
'#,!#'7'&('
3 ' 2#6 C2/'
3 H I72 +72HD!

.!'./ O OD #4
OD6 #G D2E!
H' 2 O2// DG
@ O2# OD
C/DFD#3DG
./ O O2] #4
3"D H]# Z^
7DG4 OD#3!
CDH 27 (O^
O EE #D/E 3 '
OD 2CC #3DG

@"D# 2 O2/^
/ DG @ O2#
E"27 2H]# Z^
7DG4D 2 *DDG!
3"D +D/E #
32] #4 3"D
H]# Z7DG4

U 1 ; B7 (2C N

D#3 3 E 4#
2 BDO /2#^
GI O 3 3"D
..DH3 "D/D
OD#3 #DG!

*) !) %$? 8,#% %& "# ""& @& (,&!"&(@? ,8 & #1," #8 H#'$%#""
5-&$+6 +)$-- @& "# ")& 8#--#* '. 88&!" Z[9
Ú ; 3&&(6 %$,:&(7 * +
Á > * #V *$+ ") + 3$? 2,#(1!&(@&8#,& %&
Ú 1+í $'($!:'#*-&(.&(@? ")&,& ' '$%&("# @&)&, &"
Á $'(3&&(2,&4 #1+ "# *) !) !:'#*-&(.%&'" ")& +$ (
*$+ &9$% '&(@? %& W 1+i6 +&2$,$"&-? $'(2," 8,#%)&,
Á 1+@$'(6 "#1!) '.)&, D'#*-&(.& #8 ")& #'"&'"+ #8 ")& +: (
Ú 3&&($'( )&, #'+&'" ")&,&"#6 $'((&!-$,&(")& +$%& "# @& 8,&&-?
Ú $'(4#-1'"$, -? &9&!1"&(@?)&, 7

2#G 27E
E 4# 2 (D/3 . ^
H23D .3"D
32] #4 .EIH"
H]# Z^
7DG4 OD#3 3
3"D ..DH3
"D/D OD#^
3 #DG

'(")& +$%& R1(.&6 $+"&, ')$'!&,?6 #, #%% ++ #'&,7 +)$--
$-+# + . ' $ &," 8 !$"& #8 ")& "$: '. #8 +1!) !:'#*-&(.%&'"6 "# @&
*, ""&' #, &'.,#++&(#' $ +&2$,$"& 5 &!& #8 5$,!)%&'" *) !) &,"
8 !$"&6 +1@>&!" "# $'? -"&,$" #' *) !) %$? 8,#% %& "# %& @&
(,&!"&(@? ")& #1," #8 #%%#' 5-&$+6 +)$-- @& "# ")& 8#--#* '.
88&!"

R; $,& "# !&," 8?6)$"#' ")& 3$? #8 M
' ")& &$, '&")#1+$'(& .)")1'(,&($'(
@&8#,& %& ")& 1'(&,+ .'&(, 9 * * 5 #,(
) && R1+" !& #8 ")& #1," #8 #%%#' 5-&$+ $" / *
@&8#,& %& , & * > + D' .)"6 #'& #8 ")& R1+" !&+ #8 ")&
#1," #8 D '.;+ &'!) $" / * - @&8#,& %& ")& 1'(&88
+ .'&(& * / * 1 #'& 8 ")& $+"&,+ ' ,('$,? #8
")& #1," #8)$'!&,? @&8#,& 1+ , (, $'(
* # #8 ")& 5&,2&"1$- #%% ++ #'&,+
$22# '"&(8#, ")& 8#, "$: '. ")& !:'#*N
-&(.%&'"+ #8 3&&(+ @? %$,, &(E#%&'6 21,+1$'" "# $' !" 2$++&(
' ")& &$, #8 ")& & .' #8 + $>&+"? D '. / *
")& #1,")6 '"1-&(HB 5 V
@&8#,& 1+ ")& 1'(&,+ .'&(, (2 $'(, ' , *#
#8 ")& #%% ++ #'&,+ +2&! $--? $22# '"&(21,+1$'" "# $' !" 2$7&(
' ")& &$, #8 ")& 7 . ' #8 + $>&+"? D '. / * ")&
#1,")6 '"1-&(Y 5 8#, "$: '.
")& !:'#*-&(.%&'" #8 $'? 3&&(@? ")& E 8&
#8 i $22&$,+ 2&,+#'$--? ")& E 8&
#8 $'(2,#(1!&($!&,"$ ' (&'"1,&6 %$,:&(W
+V @&$, '. 3$"& ")& 3$? #8
$'(%$(& @&"*&' Y 9 * > V $'($!:'#*N
-&(.&(")& +$%& "# @&)&, !" $'(3&&((Y *&i (#)&,&@?
!&," 8?6 ")$" ")& +$ (*$+6 $" ")& %& #8)&, $!:'#*N
-&(. ' ")& +$ (3&&(6 #8 81-- .& $'(!#%2&"&'" V'(&,+"$'('.6
$'(")$"+)& *$+ &9$% '&(@? %& c#, 1+i6 2," 8,#%)&, 1+@$'(6
"#1!) '.)&, D'#*-&(.& #8 ")& #'"&'"+ #8 ")& +$ (3&&(6 $'(")$"
+)& 8,&&-? $'(4#-1'"$, -? #'+&'"&("# ")& +$%& ;

(D/3 . H 3D!
Z 3" .. G2F 3
FD/ .6 #4 3"D
E2 OD! 3 OD
7 G4DG Z 3"
E OD '.. HD/
.3"D (I/3
.(OO #
+7D2E! Z"
E"27 H2 I ED

< '(@& " 81,")&, &'$!"&( )$" &4&,?+1!) &," 8 !$"& $+
$8#,&+$ (#8 ")& "$: '. #8 $" !:'#*-&(.%&'" @? $ %$,, &(E#%$"
#8 $'? +1!) 3&&($+ $8#,&+$ (6 "#.&")&, * ") $' 88 ($4 " @? +#%&
5&,+#' 4&, 8? '. ")& +$%&6 $'(")& . '$"1,& ")&,&#8 @? ")& 5$,"? @?
*)#%6 ")& +$%& +)$-- 21,2#," "# @& + . '&(6 +)$-- @& -#(.&(* ") +#%&
88 !&, #8 ")& #1," #8 #%%#' 5-&$+ $" / * "# @& $22# '"&(
$+)&,& '$8"&, %&'"#'&($'(+1!) 88 !&, +)$-- &9$% '& ")&
&," 8 !$"&6 $'(+&& ")$" + (1-? + .'&(6 & ")&, @? +#%& R1(.& #,
$+"&,

$ ' $ B ' ' (2C (

$+"&, ')$'!&,?6 #, @? *# #%% ++ #'&,+ $22# '"&(21,+1$'" 3"D +$%&"#
"# ") + !"6 $'((1-? 4&, 8 &(@? 88 ($4 " $+ $8#,&+$ (66 $'(+)$-- OD . 7DG #8
$-+# +&& ")$" " !#'"$ '+ +1!) "$"&%&'" #8 5$," !1-$,+6 $+ "# ")&
#'+&'" #8 ")& %$,, &(E#%$' $+ +)$-- 8,#% %& R# %& @&
,&C1 ,&(' ")$" @&)$-8 $'(8$-- ")& &C1 + "&+ ' ") + !" ' ,&.$,(
"# ")& &," 8 !$"& +)$--)$4& @&&' !#%2- &(* ")6 ")&' +1!) 88 !&,
+)$-- !$1+& ")& +$ (&," 8 !$"& $'(")& 88 ($4 " "# @& 8 -&(#8 &!#,(
' ")& +$ (#1," #8 #%%#' 5-&$+

< '(@& " 81,")&, &'$!"&(6)$" *)&' ")& &," 8 !$"& #8 '# . 7 #4
")& !:'#*-&(.%&'" #8 $ 3&&(@? $ %$,, &(E#%$' +)$-- @& +# 8 -&(," 8 &$"&6
#8 &!#,($+ $8#,&+$ (6 ")& 3&&(+# $!:'#*-&(.&(+)$--6 +# 8$, 2E ,&B
.$,(+ ")& 3 +2#+ "#'6 &-&$+&6 1,,&'(&,6 #, 9" '.1 +)%&'" ")&,&@? "$:& &88&!"
%$(& @? $'? %$,, &(E#%$' *)#+& !:'#*-&(.%&'" +)$-- @& +# !&,A ./ O #D :
" 8 &(!#'!&,' '. $'? $'(+ #, #'&? !#%2, +&(' +1!) 3&&(6 "$:& H.H# Z
&88&!" 8,#% ")& %& #8 "+ @& '. $!:'#*-&(.&(6 $'(")& +1@+&C1&'" -`(.\O&""
8 - '. #8 +1!) &," 8 !$"& $+ $8#,&+$ (+)$--)$4& ,&-$" #' "# +1!) !N
:'#*-&(.%&'"

< '(@& " 81,")&, &'$!"&( )$" ")& 88 !&, #8 ")& " ' '.. HD/
#1," #8 #%%#' 5-&$+ * ") *)#% +1!) &," 8 !$"&+ $+$8#,&+88 (+)$-- Z 3" Z" O
@& -#(.&(+)$-- %$:& $'(:&&2 $' '(&9 #8 ")& +$%&6 $'(+1!) '(&9 3"D (D/3 .
+)$-- !#'"$ ' ")& $%&+ #8 ")& %$,, &(E#%&' $'(")& , (+@$$(+" H23DE 2/D
$-2)$@&" !$--? $,,$'.&(6 $'(")& 3$"&+ #8 +1!) &," 8 !$"&+ $'(#8 7 G4DG 3
")& 3&&(+ "# *) !) ")& +$%& +)$-- ,&+2&!" 4&-? ,&-$"&6 $'(+1!) #")&, O2]D 2#
5$," !1-$,+ $+ +)$-- @& 8#1'(!#'4&' &'" $'(&4&,? +1!) &," 8 !$"& #%D& . 3"D
+)$-- @& &'"&,&(' ")& '(&9 $+ +##' $+ %$? @& $8"&, +1!) &," 8 !$"& E2OD
+)$--)$4& @&&' 8 -&(

< '(@& " 81,")&, &'$!"&(6)$" $8"&, ")& * $'? #88 !&, 3 GD
+1!) &," 8 !$"& $+ $8#,&+$ (")& 88 !&, * ") *)#% ")& &," 8 !$"& +)$-- -4&, $!#2?
@& -#(.&(+)$-- $" $'? %& (&- 4&, $ #2?6 + . '&(@?) %6 #8 $'? +1!)
&," 8 !$"& "# $'? 5&,+#' $22-? '. 8#, +1!) #2? $'(&4&,? +1!) +)$-- "& 4 B
#2? +)$-- @& ,&!& 4&($+ 4 (&'!& #8 ")& !:'#*-&(.%&'" #8 ")& GD#HD
3&&("# *) !) +1!) &," 8 !$"& +)$-- ,&8&,

'(@& " 81,")&, &'$!"&(6)$" ")& #,( ) &8 R1+" !& (" D. , IE3 HD
#8 ")& #1," #8 #%%#' 5-&$+ $" / * +)$-- 8,#% %& "# %& W7 (OO #
$22# '" ")& 5&,+#' *)# +)$-- @& ")& 88 !&, * ") *)#% +1!) 2#7')&7AA
&," 8 !$"&+ $+ $8#,&+$ (+)$-- 8#, ")& %& @& '. @& -#(.&(6 $'(.. HD/ Z 3"
%$? ,&%#4&) % $" 2-&$+1,& $'(")& #1," #8 #%%#' 5-&$+ Z" O 3"D
$" / * +)$-- $-+# 8,#% %& "# %& %$:& +1!) ,(! .+
$'(&.1-$" #'+ $+ ")& #1," +)$-- ") ': 8 " "#1!) '. ")& #(& 7 G4DGN 2#G
#8 9$% '$" #' "# @& 21,+1&(@? ")& #%% ++ #'&,+ "# @& $2B 3"D (I/3
2# '"&(1'(&, ") + !"6 $'("#1!) '. ")& 2$," !1-$, $""&,+ "# "# %$:&
@& %&'" #'&(' +1!) &%#,$'(1%+ $'(&," 8 !$"&+ $+ $8#,&+$ (6
$'(")& 88 ($4 "+ 4&, 8? '. ")& &," 8 !$"&+6 $'(")& %& * ") 'f $% '$" #)6
*) !) $'? #8 ")& $8#,&+$ (5,#!&&('.+ +)$-- "$:& 2-$!&6 $'("#1!)A BDO /2#
'. ")& %#1'" #8 ")& &&+ #,)$,.&+ "# @& 2$ (8#, ")& #2 &+ "# OE! (D/3
@& (&- 4&,&(@? ")& -&,:+ #8 ")& 5&$!& #, ")& , 3&21" &+6 '/ @? ")& 8#$"&+6 88B
88 !&, #8 ")& +$ (#1,"6 $+)&,& 'A@&8#,& (,&!"&(6 $'($-+# #8 ")&
&&+ #,)$,.&+ "# @& 2$ (8#, "$: '. !:'#*-&(.%&'"+ #8 3&&(+ $'(
8#, &9$% ' '. %$,, &(E#%&'6 $'(8#, ")& 5,#!&&('.+6 $""&,+6 $'(
) '.+ ,&C1 ,&(@? ") + !" "# @&)$(6 (#'&6 $'(&9&!1"&(8#, !#'&A
2-&" '. $'(. 4 '. &88&!" "# +1!) !:'#*-&(.%&'"+ $'(9$% '$" #'+6

(' #G

L' ' L' B ' ' (2C

' 02// DG'
@ 02# 3 '
OD' ED5P2/23D76'
D&2 O #DG' #
3"D' I//D#GD/'
.'2# D\I ^
32O7D' E323D'
(C6" 7GE'
2E' .'EIH"'
E323D' ZD/D'
7D427

' '(' @&' "' 81,")&,' &'$!"&(6')$"' "' &4&,?' $+&' '' *) !)' $'
1+@$'(' $'(' E 8&' +)$--6' & ")&,' '' #,' #1 #8' #1,"6' +1,,&'(&,' '"#' ")&'
$'(+' #8' "@&' #,(' #8' $' $""#,' $'?' $'(+')&-(' @?' #2?' #8' #1,"' #--6'
5$,!&-' #8' ")&' $'#,6' $'(' 8"' *) !)' +)&' $-#'&6' #,' +)&' $'(')&,' 1+@$'('
'')&,' .)"6' %$?')$4&' $'' &C1 "$@-&' +"$"&6' ")&6' E 8&' +)$--6' 12#'' +1!)'
1,,&'(&,' @& '.' %$(&6' @&' +&2$,$"&-?' &9$'$ '&(' @?' ")&' 5&,+#'' "$: '.'
")&' 1,,&'(&,' '' ")&' +$%Y' $''&,' $+' +)&' *#1-(')$4&' @&&'' 8' ")&'
+"$"&' "#' *) !)' +)&' $-#'&6' #,' +)&' $'(')&,' 1+@$'(' '')&,' .)"6' %$?,'
@&' &'" "-&(' '' +1!)' $'(+' *&,&' $'' +"$"&' $"' $*' '+"&$(' #8' $' %&,&'
+"$"&' ' C1 "?' $, (' &4&,?' +1!)' R 1,,&'(&,6' *)&'' +1!)' 9$% '$" #''
+)$--' @&' "$:&'6' +)$--' @&' @ '(' '.' #'' ")&' %$,, &(' E #%$'' $'(' $--' 5&,+#' +'
!-$ % '.' 1'(&,')&,' $'(' $--' 1,,&'(&,+')&,&"#8#,&' %$(&' #8' $'(+B'
+% -$,-?' ! ,!1%+"$'!&(6' *)&,&' ")&' E 8&' +)$--')$4&' @&&'' +&2$,$"&-?]'
&9$% '&(' @?' ")&' 5&,+#'' "$: '.' ")&' 1,,&'(&,6' $,&')&,&@?' (&!-$,&(' "#'
@&' .##(' $'(' 4$- (

(I/3' .'
M ## #
+7D2E' # 3"D'
(2ED' .'2'
> IEO2#G' OD^
#4' 7I#23 H'
H' O26' G E'
eH#ED' Z 3"'
7E' (#HI/^
/D#HD' D&HDC3'
Z"D/D' 3"D'
/G' ("2#^
HD77 /' /'
3"D/' +D/E #E'
#3/IE3DG'
Z 3"' I#2^
3 HE' /' 3"D'
(I/3' .'
("2#HD/6'
E"277 OD' 3"D'
+/ 3DH3 /' .'
2' D337D O D#3'
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> IEO2#G

' 5,#4 (&(' $-*$?+6' $'(' @&' "' 81,")&,' &'$!"&(')$"' 8' $' ,+)$'('
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#8' %$: '.' $' 1,,&'(&,' #8' $'(+')&-(' #2?' #8' #1,"' #--6' #,' 8'
)+' &+ (&'!&' +)$--' '#"' @&' :'#E""6' #,')&' +)$--' @&' ''5, +#'6' #,' +)$--' @&'
- 4 '.' 2,"' 8,#%')+' E 8&6' &")&,' @?' %1"1$-' #'+&'"' #,' @?' &'"&'!&6'
#8' 3 4#,!&6' #,' '' !#'+&C1&'!&' #8')+' @& '.'",$'+2#,"&(' @&? >(' ")&'
&$+6' #,' 8,#%' $'?' #")&,' $1+&' *)$"+#&4&,6' '' +)$--' @&' R$*8 -' 8#,' ")&'
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#1'! --#,+' ' ") +' 2,&+&'" &$,' $'(' ' ")&' +1!!&&('.' &$,6' '&'
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")&' #?$-' 1,.)+' ' 1'(&,' ")&' 5,#4 + #'+' #8' ") +6' !"6' 3 '4 ' I3' #'
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7DH3 #' #8 /IE3DDE' 2#G' B2#24D/E' ' '(' @&' " &'$!"&(')$" *)&,&' $'?' ,1+"6 $'$.&%&'"6 #,' 3 ,&!"#'' + @? ")&' &,%+ #8' 1'?' 51@- !' #,' #!$-' !"6 #,' #8' $'?')$,"&,' #,' 3&&(' #8' #1'($"#'6 ','#")&,' 3&&(6 !#'8&,,&(' #'' $'?' &%@&,+ #8' ")&' #1'! -' 1'(&,'")&' 3&'#% '$"#'' #8' -('5,#4#+"6 -(' $--&6 #,' -(' 3&$'' #8' H1 -(6 #,' #8' &,!)$'" #,' ,$(&+ $--&+ #,' &,!)$'"#,' ,$(&+ #1'! --#,+ ,&+2&!" 4&-?6 ")&' #*'' #1'! -+"#' @&' '$%&('$'('&-&!"&(' '' &,%+ #8' ") + !" +)$--6 %%&($"&-?' $8"&,' ")&, ' #*'' !!&2"$'!&' $'(' '(1!"#'' '"#' 88 !&6 '#% '$"&' $'('&-&!"8,#%' ")&,' #*'' #(?' +1!)' $' 1%@&,' #8' 5&,+#'+ "#' @&' +1!)' ,1+"&&+6 $'$.&,+6 #,' 3 ,&!"#,+ $+ $,&' @?' +1!)' !"+6)$,"&,+6 #,' 3&&(+ $22# '"&(' "#' ")#+&' 88 !&+ 1"-QZ,' ")&' +$ (' 3&'#% '$"#'+ $'(' ")&' *)#-&' 5#*&,+ $'(' 1'!"#'+ '#*' @&-#'. '.' "#' ")&' +$ (' 88 !&+ #8' ,1+"&&+6 $'$.&,+6 #,' 3 ,&!"#,+ +)$--' @&-#' .' "#' $'(' @&' $+ 81--?' 4&+"&(' '' ")&' 5&,+#'+ +# &-&!"&(' $+ 8' ")&?')$(' 2#++&++&(' ")&' 3&'#% '$"#'+ 1+&(' '' ")&' +$ (' !"+6)$,"&,+6 #,' 3&&(+

.--" ' #8' ,$8"+7 ,$(!+6 $'(' H1 -(, &+ "# &-&!" "- &,' #*'' 88 !&,+ ' '(' @&' " &'$!"&(')$" '#") '.')&,& '' !#'"$ '&(' +)$--' @&')&-(' #,' !#'+",1&(' "#' %2$' ")&' .)" #8' $'?' ,$8"6 ,$(&6 #'B' 4&'&,?' #8' ,$(&+6 #,' H1 -(,?6 ' &,!)$'"+ #1+&' #,' ,$(&+ #1+&6 #,' #")&,' +1!)' #,2#,$"#'6 +&4&,$--?' "#' &-&!" ")&,' #*'' 3&$!#'+ #,' 3&$!#'' #'4&'&,6 #,' 3&$'' #8' H1 -(' #,' 3 ,&!"#,+6 #,' #")&,' -$*81-' 88 !&,+6 8#,' ")&' $'$.&%&'" #8' ")&' 88$,+ #8' +1!)' ,$8"+6 ,$(&+6 #'4&'&, &+ #8' ,$(&+6 #,' H1 -(, &+6 &,!)$'"+ #,' ,$(&+ #1+&+6 #,' #")&,' +1!)' #,2#,$"#'+ ' @1" ")$"6 #'' ")&' !#'",$?6 ")&' +$ (+&4&,$-' #(&+ +)$--6 8,#%' $'(' $8"&,' ")&' 2$++ '.' #8' ") + !"6 @&' '' $--' $+&+ &'"-&(' "#' ")&' 8,&&' -&!"#'' '' +1!)' #,%' $+ +)$--' @&' ,&N .1-$"&(' @?' ")&%' #8' ")&' +$ (' +&4& $-' 88 !&' &$,&,+6 $'(' #")&,' '&!&++$,?' 88 !&,+ 8#,' ")&' $'$.&%&'" #8' ")&,' 88$,+6 * ")#1" $'?' '"&,8&,&'!&' #,' "#'#1-' E)$"+#&4&,' #' ")&' 5$," #8' ")&' #*'' #1'! -' #,' $'?' &%@&,' 3"D/D .

(D/32 #' +D2#E' .' I 7G' 2#G' *D2H #' (#^ FD#D/E' 3 ' OD' BDOOD/E' .' (I#H 7E' D&' ..H ' '(' @&' " &'$!"&(')$" 8,#%' $'(' $8"&,' ")&' %&' *)&'") + !" !#%&+ '"#' #2&,$"#' ")&' 5&,+#'+ &-&!"&(' X#,' "#' @&' P $+)&,& 'B@&8#,&' 2,#4 (&(' "#' ")&' 88 !&+ #8' 3&$'' #8' H1 -(' $'(' 3&$!#'' #'4&'&,6 #,' #'4&'&,' #8' ,$(&+6 @?' ")&' #'4&'&,?' $'(' H1 -(' ,&"),&'' ,&+2&!" 4&-?' ")&' "?' #8' . " '$'(' ")&' 88 !&+ #8' 3&$'' #8' H1 -('$'(' 3&$!#'' #'4&'&,' @?' ")&' &,!)$'"+ #1+&' $'(' ,$(&+ #1+&' ,&+2&!" 4&-?' '' ")&' "?' #8' $' +)$--6 ' 4 ,"1&' #8' ")&,' +$ (' -&!"#'+ @?' ")&' +88 (H1 -(' ,&"),&'6 #'4&'&,?6 &,N !)$'"+ #1+&6 $'(' ,$(&+ #1+&' ,&+2&!" 4&-?6 @&' !#'+"#' "1&'" &%N @&,+ #8' ")&' #*'' #1'! -+ #8' ")&' +$ (' "&+6 $'(' +)$--' '&>#?' $--' ")&' 5#*&,+ $'(' 2&,8#,%' $--' ")&' 1'!"#'+ '#*' &'>#?&(' #,' 2&,8#,%&(' @?' +1!)' 88 !&' &$,&,' '' ")&+&' "&+' $'(' '' - :&' $''&,' ")&' 5&,+#'+ &-&!"&(' X#,' "#' @&' &-&!"&(["#' ")&' 88 !&+ #8' 3&$'+ #8' H1 -(' @?' ")&' +&4&,$-' H1 -(, &+ #8' ")&' "?' #8' " '$'(' ")&' #*'+ #8' ' '$'(

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2,&+&'" &$, $'(' $-- 81"1,& &$,+6 &-&!" #'-? +1!) $ 1%@&, #8
#1'! --#,+ $+6 * ") ")& (("#' #8 ")& +$ (3&$'+ #8 H1 -($'(#'N
4&'&,+ "# @& +# &-&!"&($+ $8#,&+$ (6 %$:& 12 ")& 1%@&, #8 #1'N
! --#,+ '#* &9 +" '. ' ")& +$ (+&4&,$- "&+ $'(1,.)+ $'(")&
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$ " ' $'(> +)$-- '#" $" ")& +1@+&C1&'"
-&!" #' #8 $. +",$"&+ $'(88 !& &$,&,+ &-&!" $'? #")&, 5&,+#'+ "#
8 -- ")& 88 !&+ #, 2&,8#,%6 ")& 1'!" #'+ #8 3&$'+ #8 H1 -(#, #'N
4&'&,+6 @1" ")&+& 88 !&+ +)$-- @&)&-($'(&9&,! +&(6 ' ")& +$ (
#1'! -+ $'(#")&,* +&6 @? ")& 5&,+#'+ +# &-&!"&($+ $8#,&+$ (' ")&
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1%@&, #8 3&$!#'+6 #, ' $ 3&$!#' #'4&'&,6 #, #'4&'&, #8 O D#3E 3 OD
,$(&+6 #, ' $'? 3&$' #8 H1 -(6 #, #")&, 88 !& &$,&,+ &-&!"&(#, H #3 # I DG
)&,&$8"&, "# @& &-&!"&(@? ")& +&4&,$- ,$8"+6 ,$(&+6 H1 -(, &+6 #, # +D/E #E
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88 !&,+ +)$-- $-*$?+ @& $'(!#'" '1& ,1+"&&+ $'($'$.&,+ #8 32GDE.2#G
+1!))$, "&+ #, '+" "1" #'+6 *)&")&, +1!) 5&,+#'+ +)$--)&,&$8"&, I 7G/ DE
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#8 H1 -(6 #, #")&, 88 !&,+] 5,#4 (&($-*$?+6 ")$" ' $'? 1,.) '
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")& #'4&'&,? #, ,$(&+ #1+& $'(")& H1 -(,? #, &,!)$'"+
#1+& ' +1!) 1,.)+ +)$-- &-&!" $' &C1$- 1%@&, 8,#% ")& , #* '
#(&+ ,&+2&!" 4&-? "# @& +1!) ,1+"&&+ #, 3 ,&!"#,+6 $'? ") '.
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+)$-- @& ' ")&) ,(#8 ")& #1'! - .# '. #1" #8 88 !&6 ")& 5-$!& #8
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")& 5&, #(#8),&& &$,+6 $'(")$" ")&?6 $+ *&-- $+ $-- ")& #")&,
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23 2I H D2 HH I / / #4 Z 3" # 3"D - D2/ " Z 3 PJD E I 5PX57 DG

< '(@& "& '$!"&(6)$" 8$'? <$!$'!?+)$-- ' ")& #1,+& #8")& &$, #!!1, ' ")& #1'! - #8 $. +",$!? #, T-8 !& &$,&,+ #8 $'? +1!) 1,.) @? 3&$")6 3 +$@ - "?6 #, &+ .'$" #'6 ")& +$%& +)$-- @& 8 --&(12 *@? ")& ,&%$ ' '. &%@&,+ #8")& #1'! -6 @? -&!" #'6 $+)&,& 'B@&8#,& 2,#4 (&(6 $" $ &&" '. "# @& !$--&(#' 4& 3$?+ #" !& @? ")& #*' -&,: @? '" %$" #'6 ' E , " ' . "# &$!) #8 +1C) ,&%$ ' '. &%@&,+ #8")& #1'! -@1" $'? #1'N ! --#,6 $. +",$"&6 #, 88 !& &$,&8 +#&-&!"&(*+)$-- .# #1" #8 88 !& #' ")& 6H S5 - #8 '&9" &'+1 '.),+ -&!" #'6 $'(")& <$!$'!? ")&,&@? #!!1,, '. +)$-- @& +122- &(B $" ")& '&9" $''1$- -&!" #' 8 #''! --T,+ $'($. +",$"&+ #, 88 !& &$,&,+ ' +1!) 1,.) 2,#4 (&(")$" 8 ")&B<$!$'!? +)$-)$4& #!!1,,&(' $'? 1,.)6 !#'"$ '&(7 ' ")& +$ (!)&(1-& X B[6 1) <$!$'!? +)$-- $" +1!) $''1$- -&!" #' @& +122- &(@? ")& E $,(6 #8 +1!) 1,.) @? *) !) ")& #1'! --#, *)#)$((&(#, ,&+ .'&(>6 #, @&&' (+$@-&(6)$(@&&' &-&!"&(6 $'(4) !) +)$-- ' ") + $+& &-&!" $' $(("#'$- #1'! --#,6 1'-&++")& 5$,"? +# (? '.6 #, (+$@-&(*#1-(")&')$4& .#'& #1" #8 88 !& $+ #'& #8 ")&) ,( )&,&@? (,&!"&("# ,&" ,&

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< '(@& "& '$!"&( )$" $'? 5&,+#' &-&!"&($'($!!&2" '. ")& 88 !& #8 #1'! --#,6 $. +",$"&6 #, #")&, 88 !& &$,&, '$'? #*' #1'! -6 1'(&,")& 5,#4 + #'+ #8 ") + !"6 %$? ,&+ .') + +$ (88 !& $" $'? %&6 12#' . 4 '. '#" -&++")$'),&& E &&:+ #" !& #8 +1!)) + '"&' "#' @? $ *, ""&' ' '" %$" #' "# ")& #*' -&, ! #,) &8 #, &' #, $. +",$"& $'(' ")& 4&'" #86+V!) &+ .'$" #' @& '. '" %$"&($+ "# @& %$(& $" ")& 5&, #(#8 ")& $''1$- &" ,&%&' #8 '&) ,(#8 ")& #1'! -6 +1!) $(("#'$- 1%@&, #8 #1'! --#,+ +)$-- ")&' @& &-&!"&($+ % 7)&B'&!&++$,? "# !#%2-&"& ")& #1'! -] 5,#4 (&($- *$?+6 ")$" '# '& #, #")&, 5&'$-"? +)$-- @& &9 . @-& 8,#% $'? 5&,+#' &")&, (&!- ' '. "# $!!&2" $8"&,) + -&!" #' #, +1@+&C1&'"-? ,&+ . ' '.) + 88 !&6

I /4"E "2F^ #4 # 7D427 (I#H 7E

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M I PH 77 /E' "6' Z" O' 3 ' OD' D7DH3DG

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(D/ 2 #' I/4"E' 3 'OD' G F GDG' #3 ' @2/GE' 2#G' * E3/ H3E' O6' M # # E' E #H/E

' '(' @&' "' &'$!"&(6')$"' ")&' +$ (' 1,.)+' #,' #*'+' #8' > ' +' ' $' (' 0 * * +' +)$--' @&' (4 (&(' '"#' E$,(+' #,' 3 +", !"+6' *) !)6' "#.&")&,' * ")' ")&' 1%@&,' #8' #1'! --#,+' "#' @&' !)#+&'' @?' &$!)' +1!)' E$,(' #,' 3 +", !"6' +)$--' @&' 8 9&(' $' (' $+!&,"$ '&(' @?' ")&' #%% ++ #'&,+' '$%&(' $' (' $22# '"&(' @?' +' $>&+"?' "#' 'C1 ,&' '"#' $' (' ,&2#,"' 12#'' ")&' #'("#'' #8' ")&' +&4&,$-' 1,.)+' $' (' #*'+' #8' '@?' $' #%% ++ #'' ($"&(' #'' ")&' 8"&&'")' 3$?' #8' & ' '' ") +' 2,&+&'' &$,' $' (' +1!)' #%% ++ #'&,+' +)$--')$4&' ,&.$,(' "#' "+' @& '.' ")&' 51,2#," $' (' &$' '.' #8' ") +' !" ")$" ")&' 1%@&,' #8' E$,(+' +)$--' @&' +1!)' ")$" &$!)' E$,(' +)$--6' $" ")&' 8 ,+" -&!" #'' "#' @&' %$(&' 1'(&,' ") +' !"6' !)##+&6' $+' '&$,-?' $+' %$?' @&6' ")&' 1%@&,' #8'),&&' #1'! --#,+6' $' (' $" ")&' +1@+&C1&'' $''1$- -&!" #'+' '' &$!)' +1!!&&('.' &$,' ")&' 1%@&,' #8' '&' #1'N ! --#,' ' $' (' ")&' +$ (' #%% ++ #'&,+' +)$--6' 12#'' +1!)' 3 4 + #'' @& '.' %$(&' $' (' !#%2-&"&(6' ,&2#," ")&' +$%&' "#' +' $>&+"?;+' 5, 4?' #1'! -6' *)#' +)$--' !$1+&' +1!)' &2#," "#' @&' 21@- +)&(' @?' #?$-' 5,#!-$%$" #'' '' ")&' H$L&"&' $' (' ")&' 1%@&,' $' (' % "+' #8' +1!)' 3 +", !"+6' $' (' ")&' 1%@&,' #8' #1'! --#,+' "#' @&' &,&!"&(' @?' &$!)' +1!)' 3 +", !"6' @&' '.' +#' 8 9&(6' ,&2#,"&(6' $' (' 21@- +)&(6' +)$--' @&')&-(' $' (' "$:&'' "#' @&' $' 5$," #8' ") +' !"6' '' ")&' +$%&' $''&,' $' (' '' ")&' +$%&' 88&!" $+' 8' ")&' +$%&' *&,&' 2$," !1-$,-?' +&"' 8#,")' $' (' &'$!"&(')&,&'

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#' H2ED' 3.2D/D' E@3' "D' #' (7.D.' ' D^ # /' B 24 E^ 3/23D!' 3"D' "D/ ..' .' 3"D' (I#36' 3 ' C/DE GD' 23'

<' '(' @&' "' &'$!"&(')$"' '#' 5#--' @?' ") +' !"' $1")#, L&(' "#' @&' 8# -' '#' "#' "$:&'' +)$--' @&' :&2"' #2&'' 8#,' %#,&' ")$'' '&' 3$?6' $'(' ")$"' #'-?')&#2&'' %#,&
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@&"*&&'' ")&' #1,+' #8' .)" '' ")&' #,' '.' $'(' #1,' '' ")&' 8"&,'##'

+/ F E3' /' ("D.'5B I4E' 3/23D' 3' >X5C #'#G' G3 ##7 + 77' 4' +72HDE!' EEDEE /Q! H' .'#DHDEE2/6

< ' '(' @&' '' &'$!"&(')$" '' +)$--' @&' -$*81-' 8#,' ")&' 5,#4#+" #,') &8' #,' &' #,' $. +",$"&' #8' $'?' #8' ")&' +$ (' 1,.)+' #,' #*'+' "#' $22# '' +1!)' $'(' $+' %$'?' $(("#'$-' 5#-- '.' 5-$!&+' #,' ##")+' $+' %$?' @&' '&!&++$,?' 8#,' &'+1, '.' ")&' !#%2-&" '.' #8' +1!)' -&!"#'' *") '' '&' 3$?6' $'('$-+#' +1!)' $(("#'$-' ++&++#,+' X"#' @&' C1$-8&(' $'(' !)#+&'' $+' $8#,&+$ ([' $'(' $-+#' $+' %$'?' 5#--' -&,:+' $+' +)$--' @&' '&!&++$,?' 8#,' ")$'' 51,2#+&

+ 77']E' 3' OD' E I O O DG' IC' O6' a/ ' F E3!' Z7 ' E"277' GDH72/D' 3"D' 7DE I 73

< ' '(' @&' '' &'$!"&(')$" $" $--' +1C)' -&!"#'+' #8' #1'! --#,+' 8#,' ")&' +$ (' 1,.)+' #,' #*'+' ")&' 5#--' ##:+' 8#,' ")&' +&4&,$-' E$,(+' #,' 3 +", !"+' #8' ")&' +$ (' 1,.)+' #,' #*'+' +)$--' $" ")&' -#+&' #8' ")&' 5#--' @&' +&$-&(' 12' @?' ")&' 5&,+#'+' *)#' +)$--')$4&' 2,&+ (&(' $" ")&' -&!"#'+' #8' ")&' +&4&,$-' E$,(+' $'(' "$:&'' ")&' 5#--+' ")&,&$"6' $'(' +-$--' @&' ",$'+% ""&(' "#' ")&' 5,#4#+" #,') &8' #,' &' #,' $. +",$"&6' *)#' #'' ")&' '&9" -$*81-' 3$?' $8"&,' ")&' &!& 2" #8' ")&' +$%&6' @&"*&&'' ")&' #1,+' #8' *&-4&' $'(' *#A7 $'(' *") '' ")&' #*'' #1+&' #,' #")&,' 21@-!' 1-('.' #8' +1!)' 1,.)6' +)$--' #2&'-?' @,&$:' ")&' &$-+6' $'(' *")' ")&' ++ +"$'!&' #8' ")&' #*'' -&,:' $'(' +1!)' #")&,' 5&,+#'+' $+')&' %$?' ") ':' 8 '' "#' &%2-!?' +)$--' !$+"' 12' ")&' <#"&+' . 4&'6' $'(' +)$--' (&!-$,&' 12#'' *)#%' ")&' -&!"#'')$+' 8$--&'' @?' ")&' $>#, "?' #8' <#"&+6' X%$: '.' $' 3#1@-&' &"1,'' '' $'?' $+&' *)&,&' ")&' <#"&+' +-$--' @&' &C1$-6[' $'('+)$--' 8#,") * ")' . 4&' #,' !$1+&' "#' @&' . 4&'' #" !&' '' E," '.' "#' ")&' +&4&,$-' 5&,+#'+' &-&!"&(' #8' +1!)' ")&,' -&!"#'6' $'(' ,&C1 ,&' ")&%' +&4&,$--?' "#' $22&$,' '' ")&' #*'' $--' #,' #")&,' 21@-!' ##%' $8#,&+$ (' #'' ")&' &!#'(' -$*81-' 3$?' $8"&,' +1!)' -&!"#'6' *)&'' ")&?' +)$--' +&4&,$--?' (&!-$,&' *)&")&,' ")&?' $!!&2" #,' (&!-'&' $!!&2" '.' ")&' 88 !&' #8' #1'! --#,'' $'(' 8' $'?' +1!)' 5&,+#'' +)$--' @&' 8#1'(' "#')$4&' @&&'' &-&!"&(' @?' %#,&' ")$'' '&' #8' ")&' +$ (' E$,(+' #,' 3 +", !"+6')&' +)$--' ")&,&12#'' (&!-$,&' 8#,' *) !)' E$,(')&' '"&'(+' "#' +&,4&' $'(' *)&,&4&,' ") +' +)$--' #!!1,6' #,' *)&,&' ")&,&' +)$--' @&' $' 3#1@-&' &"1,'' 8#,' $'?' E$,(6' #,' *)&,&' $'?' 5&,+#'' &-&!"&(' +)$--' (&!-'&' $!!&2" '.6' ")&'' $'(' '' $--' +1!)' $+&+' ")&' 2,&+ (' '.' $. +N ",$"&' +)$--' %%&(' $"&-?' $22# ''' $' '&*' -&!"#'' 8#,' ")&' 4$!$'' E$,(' #,' 3 +", !"6' #,' E$,(+' #,' 3 +", !"+6' $" ")&' 3 +"$'!&' #8' '#" %#,&' ")$'' #1,' '#,' -&++' ")$'' *#' 3$?+6' $'(' $88 9' #" !&+' #8' ")&' 3$?' +#' $22# '"&(' #'' ")&')1,!)' 3##8+' #8' ")&' 1,.)' #,' #*'' $'(' +1!)' -&!"#'' +)$--' @&' 2,#!&&(&(' '' '' $--' ,&+2&!"+' '' ")&' +$%&' $'N '&,' '' *) !)' ")&' 8 ,+" -&!"#'' '' ")&' +$ (' E$,(+' #,' 3 +", !"+6' $'(' ")&' "$: '.' ")&' 5#--6' !$+" '.' 12' ")&' <#"&+6' $'(' (&!-$,' '.' ")&' &+1-"6' +')&,&' 'B@&8#,&' (,&!"&(' "#' 2,#!&&(6' 1'"-' ")&' #1'!-' #8' +1!)' 1,.)' +)$--' @&' !#%2-&"&(

(OH 77 /E3' OD' H" ED#' . /' 27] /]!' H

' '(' @&' '' &'$!"&(')$" 12#'' ")&' +$ (' ,+" 5 ' #8' & *" ' '&9" ")&' C1$-8&(' -&!"#,+' #8' $--' ")&' +$ (' 1,.)+' #,' #*'+' #8' 1 + & ') * ' " ' ' > ' #/ ' > '> " ' * ' $'(' !" ' ,&+2&!" 4&-?' $'(' +&4&,$--?' +)$--' $++&%@-&' '' ")&' #*'' $--' #,' #")&,' 21@-!' 5-$!&' "#' @&' $2N 2# '"&(' $'(' '#" 8&(' @?' ")&' #*'' -&,:' '' &$!)' +1!)' 1,.)' #,' #*'6' $'(' !)##+&' 890% $%#' '.' ")&,' #*'' 1%@&,' ")&' 1%@&,' #8' #1'! --#,+')&,&' 'A@&8#,&' (,&!"&(' "#' @&' !)#+&'' 8#,' &$!)' #8' +1!)

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)&,& 'B@&8#,&' 2,#4 (&(' $+' "#' ")&' 1,.)+' &-&!" '.' @?' 5#--' $'(' +1!)'
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12#'' *)#%' ")&' -&!" #'')$+' 8$--&'' @?' ")&' $>#, "?' #8' <#"&+' $'('
")&' 5,#4#+" #,') &8' #,' &' #,' $. +",$"&' +)$--' 8#,")*")' . 4&'
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'&*' -&!" #'' +)$--' %%&($"&-?' ")&,&$8"&,' "$:&' 2-$!&' 8#,' ")&' 4$!$''
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+)$--' @&' !#%2-&"&(

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'' $--' ")&' +$ (' 1,.)+' #,' #*'+' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"6' B 24 E3/23DE'
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M 7G/ DE' 3'
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$'(' 8#,' ,&.1-$" '.' ")&' 5,#!&&('.+' ")&,&$"' $'(' !#'+&C1& '' ")&,&#']
'(' *)&,&$+' '')$+' '#'' @&&'' 8#1'(' ")$"' ")&' +$ (' 5,#4 + #'+'
8#,' ")&' #'+ (&,$"#'' #8' 5,&+&'"%&'"+' $,&' $(&C1$"&' "#' +&!1,&'
"- &' '&&(81-' '4&+" .$" #'' #8' ")&' 3 +@1,+&%&''' #8' ")&' 21@- !' #' &+6'
$'(' "- &' (1&' $'(' &!#'#% !$-' 5&,8#,%$'!&' #8' ")&' E#,:+' "#' @&'
&$,'&(' '"#' &9&!1" #'' @?' 4 ,"1&' #8' H,$'('R1,?' 5,&+&'"%&'"+6' 21,N
+1$''' "#' ")&' +&4&,$-' !"+' '#*' '' 8#,!&' '' Û '(' *)&,&$+'
'')$+' @&&'' 8#1'(' ")$"' H,$'('R1, &+' %2$''&--&('$+')&,&"#8#,&' #'' ")&'
8 ,+'' 3$?' #8' ")&' ++ L&+' '' &$!)' #1''?6' #1''?' #8' $' "?' #,' #*'6'
)$4&''#'' +188 ! &'' %&'"#' (&- @&,$"&' 12#'' $'('&9$% '&' '"#' ")&' +&4&,$-'
5,&+&'"%&'"+' -$ (' @&8#,&' ")&%6' '#,' "#' ",$'+$!'' ")&' #")&,' 1'!" #'+' #8'
")&' H,$'(' 'C1&+"' $'(' '' +' &92&(&''' "#' &'-$,.&' +1!)' %&' ' &' ''
"- &,&8@,&' &'$!"&('@?' ")&' D '.;+' %#+'' 9!&--&'' $>&+"?6' @?' $'(' * ")'
")&' (4 !&' $'(' #'+&'"B #8' ")&' #,(+' 2 , "1$-' $'(' &%2#,$-6' $'('
#%%#'+6' '' ") +' 2,&+&''' 5$,- $%&'' $++&%@-&(6' $'('@?' ")&' 1")#, "?'
#8'")&' +$%&6')$'' 8,#%' $'('$8"&,' ")&' #%%&'!&%&'' #8' ") +' !'' ")&'
+$ (' ,&! "&(' !'' #8' ")&' 8"?B' '")' &$,' #8' ")&' & .'' #8' +' $>&+"?'
D '. '' ")&') ,('+)$--' @&' $'('')&' +$%&' +')&,&@?' ,&2&$-&(' X+$4&'
$'('&9!&2'' +#' 8$,' $+' ")&' +$ (' ,&! "&(' !'' ,&2&$-+' $'?' #")&,' !'' #,
!"+' $'(' $-+#' +$4&' $'(' &9!&2'' ")&' 5,#4 + #'+' %$(&' ")&,& '' * ")'
,&+2&!'' "#' 88 ($4 "+' 8#,' 5,&+&'"%&'"+' '' ")&' #1''?' #8' ' " ' #,'
#1''?' #8' ")&' "?'B")&,&#86' $'(' ")&' 5,&2$,$" #'' $'(' 2, '' '.' #8'
!)&(1-&+' ")&,&#86' $'(' 31"?' #8' '+2&!"#,+' '' ,&-$" #'' ")&,&"#'
$'(' $-+#' +$4&' $'(' &9!&2'' ")&' 5,#4 + #'+' %$(&' ")&,& '' * ")' ,&N
+2&!'' "#' ")&' #*'' $'(' @&," &+' #8' 0 -' $'(' $-+#' +$4&' $'('
&9!&2'' $+' +')&,& 'B$8"&,' +$4&('$'('&9!&2"&(' * ")' ,&+2&!'' "#' 5,&+&'"BA'
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")&' 31" &+' $'('5#*&,+' #8' 12&,4 +#,+' $'(' ")& ' 3&21" &+6' $'(' ")&' 9N
&!1"#,+' #8'+1!)' 12&,4 +#,+6' $'(' 4&,+&&,+' #8' #$(+6' , (.&+6' $'('#")&,'
E#,:+' 2,&+&'"&(' #,' %$(&6' #,'B@&.1'' $'(' &'"&,&(' 12#'6' @&8#,&' ")&'
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4 + #'+' #8'")&' +$ (' !'' '#*' ,&.1-$"&' $'('$22#''' ")&' T1$- 8 !$" #'' #8'
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'H' 'H' !' ")&' & .'' #8' +'-$"&' $>&+"?' D '.' ' ")&' #1,")6' '"1-&(' '
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5&$!&' '' $'('8#,' $'?' #1''?' '' ' *)#' +)$--' @&' +& +&('#8' $' ,&&N
)#-(' +"$"&' '' &&' %2-&' #,' '' &&' $ -' #,' 8#,' 8&' #8' ")&' $' '1$-'
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8#,' $' &,%' #8' &$,+' *)&,&#8' '#'' -&++' ")$'' #1,"&&'' &$,+' +)$--' @&'
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+ "1$"&' '' +1!)' #1''?6' #,' *)#' @&' '.' +& +&(' #8' $' &$+&)#-(' +"$"&'
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$' "?6' #1'"?' #8' $' #*'6' #,' "?' $'(' #1'"?6' @? 4 ,"1&' #8' ")&'
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-(&,%$'6' $'(' 1 .&++&+6' $'(' *)&,&' ")&,&' +)$-' '#" @&' %#,&' ")$"
),&&' $. +",$"&+6' #,' *)#' +)$-' @&' &!"#,' #,' < !$,' #8' $'?' &!"#,?'
#,' < !$,$.&' #8' ")&' !-&$,' ?&$,-?' <$-1&' #8'),&&')1'(,&(' 5#1'(+6' $'('
,&+ (&'" ")&,&' '6' $'(' *)#' +)$-' @&' $" .&'" "#' ")&' *'&,' #,' *'&,+6'
#8' $'?' +"$"&' #,' +"$"&+' ' $'?' #1'"?6' #1'"? #8' $' "?6' #1'"? #8'
$' #*'6' #,' "?' $'(' #1'"?6' #8' ")&' $''1$-' <$-1&' #8' 9' ")#1+$'('
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#,' *'&,+6' *)&")&,' +1!)' .&'" +)$-' #,' +)$-' '#" @&' +& +&(' #,'
2#++&++&(' ')' +' #*' ' .)" #8' $'?' +"$"&6' 2,#4 (&(' ")$" +1!)'
.&'" @&' $' $. +",$"&' #8' +1!)' #1'"?6' $'(' ,&$--? $'(' " ' '
,&+ (' '.' ")&,&' '6' "#' $""&'(6' $'(' $-' +1!)' R1+" !&+' $,&')&,&@?' ,&C1 ,&('
"#' $++&%@-&' 8,#%' %&' "#' %&' $'(' "#')#-(' $' 2&! $-' &++ #'+' 8#,'
")&' 51 2#+&+' #8' ")+' !"6' ' +1!)' 5-$!&' $'(' 5-$!&+6' $'(' $" +1!)'
%&' $'(' %&+6' * ") ' $'? $'(' &4&,?' +1!)' #1'"? #,' 5-$!&' 8#,'
*) !)' ")&?' +)$-' @&' +1!)' R1+" !&+' $+' ")&' H,$'(' R1,?' #8' ")&' +$%&'
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' '(' @&' " &'$!"&(')$" " +)$-' @&' -$*81-' 8#,' ")&' +&4&,$-' /2#G' , I / DE
H,$'(' R1, &+' ' &4&,?' #1'"?' ' $'(' ")&?' $,&')&,&@?' ,&B
C1 ,&(6' $" &$!)' ++ L&+' "#' $22# '" @?' 5,&+&'"%&'" !&,"$ ' 5-$!&+' 8#,' 2&! $-
*") ' ")&,' ,&+2&!" 4&' #1'" &+' X'#" @&' '.' %#,&' ")$" ' '&' ' &$!)' DEE #E
$,#'?' #,' $-8' $,#'?[*)&,&6' $'(' !&,"$ ' %&+' *)&' ' 2&! $-6' &4&,?
&++ #'+' +)$-' @&' +1!!&++ 4&-?')#-(&' 2,&4 #1+' "#' ")&' '&9" ++ L&+'
8#,' +1!)' #1'" &+' ,&+2&!" 4&-?' 8#,' ")&' 51,2#+&+' #8' ")+' !"6' $+'
)&,&' 'B$8"&,' +&" 8#,")' ' $'(' +1!)' 5,&+&'"%&'" +)$-' $22# '" ")&' -$+"
&&" '.' #8' +1!)' 2&! $-' &++ #'+' "#' @&')#-(&' $" ")&' #1'"?' #1,"
#1+&6' $'(' (,&!" $-' 22- !$" #'+' 8#,' E#,:+6' ")&' 92&'!&' *)&,&#8'
" %$?' @&' @?' +1!)' 22- !$" #'+' 2,#2#+&(' "#' -&<? #88' ")&' #1'"?' $"
-$,.&6' #,' #88' ")&' $,#'?' #,' $-8' $,#'?6' #,' $'?' 5#," #" ")&,&#8' '
*) !)' +1!)' #1'"?' #1," #1+&' %$?' @&' + "1$"&6' "#' @&' %$(&' ")&,&$"
$'('$-' 22- !$" #'+' 8#,' E#,:+6' ")&' 92&'!&' *)&,&#8' " %$?' @&' 2,#N
2#+&(' $+' $8#,&+$ (' "#' -&4?' #88' $'?' #")&,' $,#'?' #,' $-8' $,#'?6' #,'
5#," #" ")&,&#8' "#' @&' %$(&' $" +1!)' 2,&4 #1+' &&" '.' #8' 2&! $-
&++ #'+' $+' +)$)6' @&6')#-(&' ' $'(' 8#,' ")&' +$%&' $,#'?' #,' $-8'
$,#'?' $'(' +1!)' 5,&+&'"%&'" +)$-' $22# '" $'(' (&8 '&' +1!)' $,#' &+'
$'(' $-8' $,#' &+' $!!#,(' '.-?' $'(' " +)$-' $-+#' @&' -$*81-' 8#,' ")&'
H,$'(' R1,?' $" &4&,?' +1!)' ++ L&+' "#' (,&!" @?' 5,&+&'"%&'"6 *)$"
1%@&,' #8' #2 &+' #8' ")&' !)&(1-&+' #8' 22- !$" #'+' "#' @&' %$(&' $"
+1!)' &++ #'+' +)$-' @&' 2, '"&(' $'(' (+", @1"&(' "#' ")&' &!,&"$,?' #8'
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< ' '(' @&' " &'$!"&(')$" ")&B H,$'(' R1,?' 8#,' $'?' #1'"?' #8' $' '-?' '
"?' #,' #1'"?' #8' $' #*' ' +)$-' $22# '" '&' +1!)' 2&! $-' &++ #'+' +1!)' DEE #
"#' @&')#-(&' ' ")&' +$%&' 8#,' ")&' 51,2#+&+' $8#,&+$ (6' $'(' ")$" $-' 8W
22- !$" #'+' 8#,' E#,:+6' ")&' 92&'!&+' *)&,&#8' $,&' "#' @&' -&4 &(6' #88
+1!)' #1'"?' #8' $' "?' #,' #*'6' +)$-' @&' %$(&' ")&,&$"6' ' 6
' 6' ' ' < ' '(

.-' (#' $'"' '$:&A7 &A 3I/#E 3 'OD 73G OD. /D M /2#G, I/6'

< ' '(' 8#,' ")&' 51,2#+&' #8' &'$@- '.' ")&' H,$'(' R1,?' "#' 2,&2$,&]' +1!)' +" #8' &++ 5$?&,+' 1+')&,& 'B$8"&,' %&'"#'&(6' @&' " 81,")&,' &'$!"&(6')$" &4&,?' .)' #'+"$@-&6' #,' #")&,' #--&!"#,' #8' #'&?' -&4 &(' @?' H,$'(' R1,?' 5,&+&'"%&'"6' +)$--' %$:&' $' &"1,'6' #'' ")&' 3$?' *)&'' ")&' H,$'(' R1,?' +)$)6' @&' 8 ,+" %2$''&V&(' $" &$!)' ++ L&+6' "#' ")&' &!,&"$,?' #8' ")&' H,$'(' R1,?6' #8' $' +" !#'"$ 'N '.' ")&' $%&+' $'(' 5-$!&+' #8' &+ (&'!&' #8' ")&' '&')1'(,&(' 5&,+#'+' '' &$!)' $,#'?' #,' $-8' $,#'?' '' &$!)' #1'"?6' 8' +#' %$'?' ")&,&' @&' *)#' +)$--')$4&' @&&'' !)$,.&(' * ")' $'(' +)$--')$4&' 2$ (' ")&') .)&+" 1%' #,' 1%+' 8#,' ")&' #1'"?' &++')$,.&' #,' H,$'(' R1,?' $"&+' 8#,' $'(' '' ,&+2&!" '$'?' $'(+' * ") '' +1!)' $,#'?' #,' $-8' $,#'?6' $'('+"$" '.'")&' ,,&$,+6' 8' $'?6' *) !)' +)$--' @&' (1&' @?' &$!)' '(4 (1$-' $'(' ")$" #'' ")&' &!& 2" #8' +1!)' &"1,'' @?' ")&' &!,&"$,?6' +1!)' &!,&"$,?' +)$--' %%&($"&-?' -$?' ")&' +$%&' @&8#,&' ")&' H,$'('R1,?

. /I#G' , I/6' 3 ' GD3D/ O #D') I O OD/' .' 3 3D' +26D/E' 3 ' OD' 2EE ^ H 23DG' Z 3"' , I E3 HDE' 23' CDH 27' DE^ E #E

< ' '(' @&' " &'$!"&(6' - $" &4&,?' +1!)' H,$'(' R1,?' $+' $8#,&+$ (' +)$--' $" &$!)' ++ L&+' 8 9' $'(' (&"&,% '&' ")&' 1%@&,' #8' 5&,+#'+6' '#" @&' '.'%#,&' ")$'' *&-4&' '#,' -&++' ")$'' 4&6' 2$? '.' H,$'(' R1,?' &+76' $'(' ,&+ (&'" * ") '' +1!)' $,#'?' #,' $-8' $,#'?6' $,#' &+' #,' $-8' $,#' &+' ,&+2&!" 4&-?6' #,' '' ")&' $!"1$-' !!12$" #'' #8' $'(' ")&,& '6' 2,#2&,6' * ")' ,&8&,&'!&' "#' ")&' 9"&'" $'(' ,!1%+"$'!&+' #8' +1!)' $,#'?' #,' $-8' $,#'?6' "#' @&' $++#! $"&(' * ")' ")&' R1+" !&+' $" ' 2&&%' &++ #'+' "#' @&')#-(&" ")&,& '' 8#,' ")&' 51,2#+&+' #8' ") +' !"6B' $'(' +)$--' %$:&' #1" $' +" #8' 3#1@-&' ")&' +$%&' 1%@&,' #8' 5&,+#'+6' * ")' ")&,' ((("#'+' $'(' @#(&6' *)#6' '#" @&' '.' R1+" !&+' #8' ")&' 5&$!&' C1$- 8 &(' 1'(&,' ") +' !"6' +)$--')$4&' 2$ (' ")&') .)&+" %#1'" #8' H,$'(' R1,?' &++ 1'(&,' ")&' -$+" 2,&4 #1+' 22-#"%&'" '' &$!)' +1!)B' $,#'?' #,' $-8' $,#'?' ,&+2&!" 4&-?6' $'(' ")&' &!,&"$,?' #8' ")&' H,$'(' R1,?' +)$--' (&- 4&,' #,' !$1+&' "#' @&' (&- 4&,&(' "#' &$!)' #8' ")&' 5&,+#'+' '!-1(&(' '' +1!)' +" $' #2?' ")&,&#86' $'(' +)$--' $-+#' (&- 4&,' $' #2?' ")&,&#8' "#' ")&' R1+" !&+' $++&%@-&(' $" &$!)' 2&! $-' &++ #'+' "#' @&')&-(' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"

M,/2#G' , I/6' 3 ' GD3D/ O #D') I O OD/' .' (DEE' +26D/E' 3 ' OD' 2EE ^ H 23DG' Z 37' , I E3 HDE' 23' CDH 27' DE^ E #E

< ' '(' @&' " &'$!"&(')$" ")&' H,$'(' R1,?' #8' &$!)' #1'"?' #8' $' "?' #,' #*'6' #,' #1'"?' $'(' "?6' +)$--' '' - :&' $''&,' (&"&,% '&' ")&' 1%@&,' #8' &++ 5$?&,+' 2,#2&,' "#')&' $++#! $"&(' * ")' ")&' R1+" !&+' $" ")&' 2&! $-' &++ #'+' "#' @&')#-(&'' ")&,& '6' $'(' 2,&2$,&' $' +" #8' 3#1@-&' ")&' +$%&' 1%@&,6' '#" @&' '.' R1+" !&+' C1$- 8 &(' 1'(&,' ") +' !"6B' #8' 5&,+#'+')$4 '.' 2$ (' ")&' .,&$"&+" %#1'" #8' H,$'(' R1,?' &++' $+' $8#,&+$ (6' $'(' ")$" +1!)' +" +)$--' @&' (&- 4&,&(' $'(' (&$-" * ") '' $--' ,&+2&!"+' $+' +"+' 2,&2$,&(' '' $'?' #1'"?' $"-$,.&

B 24 E3/23DE' 3 ' H" ED' 2' ("2 / O2#!' 2#G' 3"D#' 3 ' ED7DH3' O6' 3' 3"D') I O OD/' .' (DEE' +26D/E' 3 ' OD' 2EE H 23DG' Z 3"' 3"D O

< ' '(' @&' " &'$!"&(')$" $" &4&,?' &&" '.' #8' +1!)' 2&! $-' &++ #'+' ")&' $>#, "?' #8' ")&' R1+" !&+' C1$- 8 &(' 1'(&,' ") +' !" 2,&+&'" ")&,&$" +)$--' !)##+&' #'&' #8' ")&' 1%@&,' "#' 2,&+ (&' ")&,&$"6' $'(' ")$" *)&'' #'-?' *#' R1+" !&+' +)$--' @&' 2,&+&'" ")&' +&' #' #8' ")&%' +)$--' 2,&+ (&6' $'(' ")$" *)&'' '-?' '&' R1+" !&' +)$--' @&' 2,&+&'" +1!)' R1+" !&' +)$--' 2,&+ (&' $'(' +1!@')$,%$'' +)$--')$4&' $' !$+" '.' <# !&' '' !$+&' #8' $'' C1$- "?' #8' <# !&6' @1" +)$--' '#" 4#"&' &9!&2" '' !$+&' #8' +1!)' C1$- "?' $'(' %%&($"&-?' $8"&,' ")&' 22#' '"%&'" #8' +1!)')$,%$'' $'(' @&8#,&' &'"&, '.' 12#'' $'?' #")&,' 1+ '&++6' ")&' $%&' #8' &4&,?' 5&,+#'' '!-1(&(' '' ")&' +" #8' &++ 5$?&,+6' 2,&2$,&(' '' %$''&,' @&8#,&' $22#' '"&(' 8#,' $!)' $,#'?' #,' $-8' $,#'?' '' *) !)' +1!)B' &++ #'+

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&++ #'+ʿ +)$--ʿ @&ʿ)&-(6ʿ #,6ʿ 'ʿ ")&ʿ $+&ʿ #8ʿ $'?ʿ #1'"?ʿ #8ʿ $ʿ "?ʿ#"ʿ
#* '6ʿ 2,&2$,&(ʿ 8#,ʿ ")&ʿ +$%&6ʿ *, ""&'ʿ 12#'ʿ +&2$,$"&ʿ 5 &!&+ʿ #8ʿ 5$,!)N
%&'"ʿ #,ʿ $,(ʿ $+ʿ '&$,-?ʿ $+ʿ %$?ʿ)&ʿ #8ʿ &C1$-ʿ L&6ʿ * ")ʿ) +ʿ ,&+2&!" 4&ʿ
(("#'+ʿ $'(ʿ @#(&6ʿ +)$--ʿ @&ʿ 21"ʿ '"#ʿ $ʿ #96ʿ "#ʿ @&6ʿ $+ʿ *&--ʿ $Z ")&ʿ
+$ (ʿ 5 &!&+ʿ #8ʿ $,(ʿ #,ʿ 5$,!)%&'"6ʿ 8#,ʿ ")$"ʿ 51,2#+&ʿ 2,#4 (&(ʿ @?ʿ
")&ʿ &!,&"$,?ʿ #8ʿ ")&ʿ H,$'(ʿ R1,?6ʿ $'(ʿ ")&ʿ)$,%$'ʿ $22# '"&(ʿ "#ʿ
2,&+ (&ʿ $"ʿ &$!)ʿ +1!)ʿ &++ #'+ʿ +)$--ʿ 'ʿ #2&'ʿ #1,"ʿ (,$*ʿ #1"6ʿ #'&ʿ $8"&,ʿ
$'#")&,6ʿ +1!)ʿ 1%@&,ʿ #8ʿ ")&ʿ +$ (ʿ $,(+ʿ #,ʿ 5 &!&+ʿ #8ʿ 5$,!)%&'"ʿ $+ʿ
")&ʿ +$ (ʿ H,$'(ʿ R1,?ʿ %$?ʿ)$4&ʿ 8 9&(ʿ $'(ʿ (&"&,% '&(ʿ "#ʿ @&ʿ ")&ʿ 2,#2&,ʿ
1%@&,ʿ #8ʿ &++ʿ 5$?&,+ʿ "#ʿ @&ʿ $++#! $"&(ʿ * ")ʿ ")&ʿ +$ (ʿ R1+" !&ʿ #,ʿ
R1+" !&+ʿ $"ʿ &$!)ʿ +1!)ʿ &++ #'+ʿ ,&+2&!" 4&-?ʿ $'(ʿ 8ʿ $'?ʿ #8ʿ ")&ʿ &'ʿ
*)#+&ʿ $%&+ʿ +)$--ʿ @&ʿ +#ʿ (,$*'ʿ +)$--ʿ '#"ʿ $22&$,6ʿ ")&'ʿ +1!)ʿ $'(ʿ +#ʿ
%$'?ʿ %#,&ʿ #8ʿ +1!)ʿ $,(+ʿ #,ʿ 5 &!&+ʿ +)$--ʿ @&ʿ (,$*'ʿ $+ʿ %$?ʿ @&ʿ '&!&+N
+$,?6ʿ 1'"-ʿ ")&ʿ 1%@&,ʿ #8ʿ &++ʿ 5$?&,+ʿ $22# '"&(ʿ $+ʿ $8#,&+$ (ʿ "#ʿ @&ʿ
$++#! $"&(ʿ * ")ʿ ")&ʿ +$ (ʿ R1+" !&ʿ #,ʿ R1+" !&+ʿ +)$--ʿ @&ʿ !#%2-&"&(ʿ ʿ $'(ʿ
+1!)ʿ 1%@&,ʿ #8ʿ ")&ʿ +$ (ʿ &++ʿ 5$?&,+ʿ +#ʿ 8 ,+"ʿ (,$*'ʿ $'(ʿ $22&$, '.6ʿ
#,ʿ +1!)ʿ-&++&,ʿ 1%@&,ʿ #8ʿ ")&%ʿ $+ʿ +)$--ʿ $22&$,ʿ *)&'ʿ (,$*'6ʿ +)$--ʿ @&ʿ
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*)&,&#8ʿ 'ʿ %$?ʿ @&ʿ 2,#2#+&(ʿ "#ʿ -&4?ʿ #88ʿ ")& $,#'?ʿ #,ʿ $-8ʿ $,#'?6ʿ #,ʿ
5#," #'ʿ ")&,&#86ʿ *)&,& 'ʿ +1!)ʿ #1,"ʿ #1+&ʿ %$?ʿ @&ʿ + "1$"&]ʿ '(ʿ
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!#'8&,,&(ʿ 12#'ʿ +1!)ʿ 2&! $-ʿ &++ #'+ʿ 'ʿ ,&+2&!"ʿ #8ʿ +#ʿ %1!)ʿ #8ʿ ")&ʿ
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* ")ʿ +1!)ʿ R1+" !&ʿ #,ʿ R1+" !&+ʿ 'ʿ %$''&,ʿ $8#,&+$ (6ʿ +)$--6ʿ 2,&4 #1+-?ʿ "#ʿ
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5$?&,+' *)#' +)$--')$4&' "$:&'' $'(' +1@+!, @&(' +1!)' $")' $" ")&' &++ #'+'
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%&6' * ")#1" 1',&$+#'$@-&' 3&-$?6' (&- 4&,' ")&' +$ (' +"6' $'(' $--' ")&'
$")+' +#' %$(&' $'(' +1@+!, @&(6' "#' ")&' $!" '.' -&,:' #8' ")&' 5&$!&6' "#'
@&' @?') %' 2,&+&,4&(' $%#'.' ")&' &!#,(+' #8' ")&' +$%&' #1 E ?' 5,#N
4 (&(' $-*$?+6' ")$" 8' $" $'?' +1!)' 7&! $-' &++ #'+' '&' R1+" !&' $" ")&'
-&$+" $'(' *#' &++' 5$?&,+' (8,?' C1$- 8 &(' 1'(&,' ") +' !" +)$--' '#"
@&' 2,&+&'"6' +1!)' &++ #'+' +)$--' $(>#1,'' 1'" -' ")&' 3$?' '&9" +1!!&&('.6'
1'-&++' +1!)' 3$?' +)$--' @&' $' ' #,' ' ' ' #,' '
1 ' $'(' +#' #'' ' ' ' *' 1'" -' +#%&' '&' +1!)' R1+" !&' $'('
*#' &++' 5$?&,+' +)$--' $""&'(' $'(' 2,#4 (&(' 81,")&,6' ")$" " +)$--' @&'
!#%2&"&'" 8#,' $'?' '&' +1!)' R1+" !&' $'(' *#' &+' ' $?&,+' "#')#-('
+1!)' 2&! $-' &++ #'+6' $'(' "#' (#' $--' $""&,+' $'(') '.+' $1")#, L&(' "#'
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+72HDE' . /' . & #4') 3 HDE

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@&' 2,#%1-.$"&(' @?' (4&," +&%&'"+' $88 9&(' #'' #,' %%&%+7"&-?' $(>$!&'"
"#' ")&' 3##,+' #8' &4&,?')1,!)6')$2&-6' $'(' #%$'' $")#8 !6' 5,&+N
@?"&, $'6' $'(' 3 ++&'"&,+' #1+&' #8' E#,+) 26' $'(' $" ")&' 1+1$-' 5-$!&+'
#8' 2#+" '.' #" !&+' * ") '' &$!)' $'(' &4&,?' 5$, +)

) 3 HDE' .' CC7 H23 #E' 3' CDH 27' $ B 0 C<'

' '(' @&' " &'$!"&(')$" $' #" !&' '' E, " '.' #8' &4&,?' 22- B'
!$" #'' '"&'(&(' "#' @&' %$(&' $" $'?' +1!)' 2&! $-' &++ #'+' $+' $8#,&+$ ('
E"2 ' @&' 2#+"&(' @?' #,' #" @&)$-8' #8' ")&' 5&,+#" #,' 5&,+#'+' '"&'('.' "#
%$:&' +1!)' 22- !$" #'6' $" ")&' 5-$!&+' $8#,&+$ (6' * ") '' +1!)' 5$, +)'
*)&,&' ")&' E#,:' "#' *) !)' +1!)' 22- !$" #'' +)$--' ,&-$"&' +' 2,#2#+&('
"#' @&' &9&!1"&(6' @&"*&&' ")&' #1,+' #8' .)" #8' ")&' -#!:' ' ")&'
#,&'##'' $'(' #1,' #8' ")&' -#!:' '' ")&' 8"&,'##'' #'' ")&' '
'&9" @1" '&' 2,&4 #1+' "#' ")&' 8 ,+" 3$?' $22# '"&(' 8#,')#-('.' +1!)'
2&! $-' &++ #'+

CC7 H23 #E' . /' +/DED#3^ O D#3E' . /' / G4DE!' I 77D3E!' 7 ZD/ #4' > 77E!' . 77 #4' IC' > 77 ZE!' E"277' OD' O 2GD' 23' 3"D' * F E #27' CDH 27' DE^ E #E

' '(' @&' " &'$!"&(')$" $--' 22- !$" #'+' 8#,' ")&' 51,2#+&+'
)&,& 'B$8"&,' %&'" #'&('+)$--6' $'?' ") '.')&,& 'B@&8#,&' !#'"$ '&(' "#' ")&'
!#'",$,?' '#"* ")+"$'('.6' @&' %$(&' $" ")&' 2&! $-' &++ #'+')#-(&'' 8#,'
")&' $,#'?' #,' $-8' $,#'?' '' *) !)' ")&' E#,:+' '!-1(&(' '' +1!)'
22- !$" #'+' %$?' @&' -#!$--?' + "1$"&' X")$" +' "#' +$?6[' $--' 22- !$" #'+'
8#,' -#*&, '.' $'?' --' #,' 8 -- '.' 12' $'?' #--#*6' #,' @#")6' #'' $'?' 5#+"
#,' #")&,' #$(' -&$('.' (,&!"-?' 8,#%' #'&' $,:&" #*'' "#' $'#")&,'
$;:&" #*'6' #,' 8,#%' $'?' $,:&" #*'' "#' ")&' &$6' $'(' 8#,' %$: '.'
")&' #$(")&,&#'' * ")' "#'&+' $'(' H,$4&-6' #,' 8#,' @1 -('.6' ,&@1 -('.6'
,&2$, '.6' $-"&, '.6' #,' &'-$,. '.' $'?' , (.&6' 5 2&6' ,!)6' #,' H1--&"6'
@1 -" #8' "#'&+' #,' , !:+' #,' E##(6' 1'(&,' #,' #'' $'?' #$(6' #,' 8 -- '.' #,'
.,$4&-- '.' #4&,' $'?' +1!)' , (.&6' ,!)6' 5 2&6' #,' H1--&"6' #,' '' @1 -('.'
#,' ,&2$, '.' $'?' E$--' #,' 5$," #8' $' E$--' '&!&++$,?' "#' ")&' 122#," #8'
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N $ B ' ' (2C QW

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"&!" #'' #8' ,$4&--&,+' 8,#%' ($'.&,#1+' 5,&! 2 !&+' #,' #-&+' -? ' .' #'' ")&'
(&' #8' $'?' 21@-!' #$(' $'(' 2,#4 (&(' 81,")&,6 ")$"' '' !$+&' ")&'
%#1'"' #8' ")&' 1%' #,' 1%+' #8' #'&?' ,&C1 ,&(' 8#,' $'?' +1!)' 51,B'
2 2+&+' $+' $8#,&+$ (' +)$--' '#" &9!&&(' *&'"?' 5#1'(+6 "' +)$--6 8,#%' $'('
$8"&,' ")&' #%%&'!&%&'"' #8' ") +' !"6 @&' -$*81-' 8#,' ")&' H,$'('R1,?'
"#' 2,&+&'"' ")&' +$%&' "#' @&' ,$+&(' #88' $'?' $,#'?' #,' $-8' $,#'?' ''
*) !)' ")&' +$%&' %$?' @&' -#!$--?' + "1$"&6 $'?' !"' #,' !"+' (,&!" '.' +1!)'
1%' #,' 1%+' #8' #'&?' 8#,' ")&' 51,2#+&+' $8#,&+$ (' "#' @&' ,$+&(' #88' ")&'
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' '(' @&' "' &'$!"&(')$"' ")&' 22-!$" #'+' 8#,' $'?' E#,:+' CC7 H23 #E'
*) !)' "' +' 2,#2#+&(' "#' !)$,.&' 12#'' *#' #,' %#,&' $,#' &+' #,' $-8' . /' @ /]E'
$,#' &+6 #,' $'?' 5#," #'' ")&,&#86 #8' $'?' #1'"?6 @1"' '#"' 12#'' ")&' .2&($-7
#1'"?' $"' -$,.&6 +)$--' $'(' %$?' @&' %$(&' $"' ")&' 2&! $-' &++ #'+')#-(&'' DEE #E!'
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"' +' 2,#2#+&(' ")$"' ")&' -$,.&,' 5#," #'' #8' ")&' 92&'!&' #8' +1!)' E#,:' +'
"#' @&' ,$+&(6 * ")#1"' %$: '.' ")&' +$%&' $"' ")&' 2&! $-' &++ #'+' 8#,' &$!)'
#8' +1!)' $,#' &+' #,' $-8' $,#' &+

' '(' @&' "' &'$!"&(6)$"' &4&,?' +1!)' 22-!$" #'' +)$--' @&' CC7 H23 #E'
-#(.&(' * ")' ")&' &!,&"$,?' #8' ")&' H,$'('R1,?' &'' 3$?+' $"' -&$+'@&8#,&' 3 'OD' 7 G4DG'
")&' 8 ,+' 3$?' $22# '"&(' 8#,' ")&')#-('.' #8' ")&' 2&! $-' &++ #'+' *)&,&$"' Z 3"' 3"D' DH/D32/6' .'
+1!)' 22-!$" #'' +' "#' @&' %$(&' $'(' +1!)' &!,&"$,?' +')&,&@?' ,&N 3"D' /2#G'
C1 ,&(' "#' :&&2' $'' 88 !&' #2&'' 8#,' ")&' 51,2#+&' #8' ,&!& 4 '.' +1!)' , I/6
22-!$" #'+' (1, '.' 8"&&'' 3$?+' %%&($"&-?' 2,&!&('.' ")&' -$+'
3$?' 12#'' *) !)' +1!)' 22-!$" #'+' $,&' ,&C1 ,&(' "#' @&' -#(.&(' * ")'
")&' &!,&"$,?6 $'(' ")&' +$ (' 22-!$" #'+'+)$--'@&' #2&'' "#' 21@-!' '+2&!N
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#8' &$!)' 22-!$" #'6 '(#,+&' #,' !$1+&' "#' @&' '(#,+&(' ")&,&12#'' ")&' 2//2#4D' 2#G'
%&' *)&'' ")&' +$%&' +' -#(.&(6 $'(' '1%@&,' $'('$,,$'.&' $V' +1!)' 2N #I OOD/'
2-!$" #'+' $+' ")&' E#,:+' ")&,& '' !#%2, +&(' %$?' @&' 2,#2#+&(' "#' @&' 3"DO
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#,' 5#," #'' ")&,&#86 $'(' +)$--' %$:&' $'' @+",$!"' ")&,&#86 $'(' $'' '(&9'
")&,&"#' ,&8&,, '.' "#' ")&' 1%@&,+' *) !)')&' +)$--' %$,:' #'' &$!)' 22-N
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"#'+' *) !)' +)$--')$4&' @&&'' -#(.&(' * ")') %' #,' (&-4&,(' $") +' 88 !&'
$+' $8#,&+$ (' ,&+2&!" '.' ")&' 9&!1" #'' #8' $'?' E#,:' *) !)' "' %$?' @&'
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$,#'?' #,' 5#," #'' ")&,&#86 (&8 '&(' $+' $8#,&+$ (6 $"' &4&,?' +1!)' &++ #'+'
*) !)' +)$--' @&' ,&+2&!" 4&-?')&-(' 8#,' ")&' #'+ (&,$" #'' #8' ")&' +$%&6
"#.&")&,' * ")' ")&' @+",$!"' ")&,&#8' $'(' ")&' '(&9' ")&,&"#

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88&!"' $+' +1!)' 88 ($4 "+' "#' %2#*&,' $'?' H,$'('R1,?' "#' %$:&' 5,&N
+&'"%&'"+' 8#,' ")&' 51,2#+&' ")&,& '' ,&+2&!" 4&-?' +2&! 8 &(6 $'?' !"' #,'
!"+' "#' ")&' !#'",$,?')&,&#8 '#"* ")+"$'('.] 5,#4 (&(' $-*$?+6 ")$"' B 2##D/' #'
+1!)' 22-!$" #'+'+)$--' @&' 8#,' +1!)' 21@-!' E#,:+' #,' #")&,' $""&,+' $+' Z" H"' CC7 ^
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L' B' ' 2C<QN

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+1!)' 22- !$" #"' +)$-' @&' %$(&' @?' *#' 5&,+#'+' 2$? ' .' H,$'('R1,?'
&++6' $'(' +)$--' +&" #1"")&' "-&' #8'")&' !" $1")2, L ' .' +1!)' 5,&+&'"N
%&'"6' * ")' ")&' &$,' #8' ")&' D '.A+' & .'6')$2"&,' $'(' &!"#'6' +
, '"&(' @?' +' $>&+"?;+' 5, '"&,6' $'(' +)$--' +2&! 8?' *)&")&,' ")&'
-#'&?'2,#2#+&('"#' @&' ,$ +&('")&,&1'(&,' +'"#' @&' -&4 &('#- '")&' #1'"?'
$"-$,.&6' #,' +#%&' $'(' *)$" $,#""?'#,' $-8' $,#'?'#,'#")&,' 3&'#% N
'$" #"' #8' $'('")&,&#86' $'(' +)$--' @&' %$(&' '+#%&' #'&' #8' ")&' #,%+'
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$'(' +)$--' @&' + .'&(' @?' ")&' *#' 5&,+#'+' %$: ' .' +1!)' 22- !$" #"'
* ")' ")& ,' #*"' 2,#2&,' $'(+' $'(' "' +)$--' '#"' @&' -$*81-6' +$4&' $+'
)&,& 'B$8"&,'2,#4 (&(6' 8#,' ")&' &!,&"$,?'"#' ")&' H,$'('R1,?'"#' ,&!& 4&'
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!#'+ (&,$" #"' $--' +1!)' 22- !$" #'+' $+' %$?' @&' ,2$(&' $'(' -$ ('@&8#,&'
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"#' &9$% '&' '"#' ")&' 2#+" 7' #,' +&,4 ' .' #8' ")&' #" !&+' #8' $-" 1!)'
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&++' 5$?&,+' +)$--6' $8"&,' +1!)' 9$% '$" #'6' (&! (&' @?' $>#, "?' #8'
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#8' ")&' +$%&6' "#.&")&,' * ")' +1!)' 2&! 8 !$" #'+6' $2+665-$'+6' &!" #'+6'
#,' -&4$" #'+' $+' %$?')&' '&!&++$,?6' &92,&++ ' .' ")&' $"1,&' $'('
9"&'"#8' +1!)' E#,:+6' $'(' ")&' $"&, $-+' 2,#2&,' "#' @&' &%2-#?&(' "
2&,8#,% ' .' $'('&9&!1" ' .' ")&' +$%&6' $'(' ")&' &,%' * ") ' *) !)' +1!)'
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&!" #'+6ʻ $'(ʻ 2&! 8 !$" #'+ʻ ,&-$"ʻ '.ʻ "#ʻ $'?ʻ +1!)ʻ E#,:ʻ +)$--ʻ @&ʻ #2&'
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+)$--ʻ 'ʻ #2&'ʻ #1,"ʻ 2,#(1!&6ʻ (1-?ʻ '1%@&,&(ʻ $'(ʻ $,,$'.&(6ʻ $--ʻ ")&ʻ D#GD/Eʻ 2#Gʻ
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+##'ʻ $+ʻ ")&ʻ -#*&+"ʻ 5,#2#+$-ʻ %$$(&ʻ 8#,ʻ ")&ʻ 5&,8#,%$'!&ʻ #8ʻ &$!)ʻ +1!)ʻ 2#Gʻ =
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+)$--' ")&,&12#'' &'"&,' '"#' &!1, "?' 8#,' ")&' (1&' 5&,8#,%$'!&' #8' ")&'
+$%&6' !#'("#'&(' '' +1!)' 5&'$-"?' $+' $8#,&+$ (6' +1!)' 5,#2#+$-' +)$--'
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&9&!1"&' ")&' E#,:' "#' *) !)' +1!)' 5,#2#+$-' %$?' ,&8&,6' 8' ")&' +$%&'
+)$--' @&' 2,&+&'"&(' @?' ")&' H,$'('R1,?' ' @1'' ")$'' 8' ")&' 5$,"?' %$: '.'
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@?' #'",$!"#,+' 1'(&,' ")' +' !'' $'(' ")&,' 1,&" &+' +)$--' @&' $' &!#. ' N
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, L&(' "#' "$:&' +1!)' &!#. ' L$'!&6' $'(' ")&' &!,&"$,?' #8' ")&' H,$'('R1,?'
+)$--' 2,&2$,&' ")&' +$%&6' $'(' !#%&' 2,#4 (&(' ")&,&* ")6' +#' $+' "#' 2,&4&''
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+)$--')$4&' @&&'' 81-8 --&(6' $'(' +)$--' ")&'' @&' (&- 4&,&(' 12' "#' ")&' #'1+&&'
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D&HDDG' O,'
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' 5,#4 (&('$-*$?+6' $'('@&' "&'$!"&(')$'' 8'$'?'+1!)' 22- !$" #''
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8' ")&' R1+" !&' #,' R1+" !&+' $'(' &++' 5$?&,+' $+' $8#,&+$ (' +)$--' $22,#4&'
#8' +1!)' 22- !$" #'6' &")&,' *)#--?' #,' '' 2$,"6' #,' #8' $'?' #(8 !$" #''
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+#ʿ '(#,+&(ʿ "#ʿ ")&ʿ &!,&"$,?ʿ #8ʿ ")&ʿ H,$' (ʿR1,?ʿ ʿ $' (ʿ +1!)ʿ &!,&"$,?
+)$--ʿ -$?ʿ &$!)ʿ $' (ʿ &4&,?ʿ +1!)ʿ 22- !$" #'ʿ @&8#,&ʿ ")&ʿ H,$' (ʿR1,?ʿ "#ʿ
)&ʿ %2$' '&--&(ʿ $"ʿ ")&ʿ ++ L&+ʿ)&-(ʿ '&9"ʿ $8"&,ʿ +1!)ʿ 22- !$" #'ʿ +)$--ʿ
)$4&ʿ @&&'ʿ $22,#4&(ʿ $"ʿ +1!)ʿ 2&! $-ʿ &++ #'+6ʿ "#ʿ @&ʿ !&," 8 &(ʿ @?ʿ ")&ʿ
#,&%$'ʿ ")&,&#86ʿ *)#ʿ +)$--ʿ !&," 8?ʿ ")&ʿ +$%&ʿ $!!#,(' .-?ʿ @1"ʿ "ʿ +)$--ʿ
'#"ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ H,$' (ʿR1,?ʿ $"ʿ +1!)ʿ 8 ,+"ʿ ++ L&+ʿ)&-(ʿ $8"&,ʿ ")&ʿ
2&! $-ʿ &++ #'+ʿ *)&,&$"ʿ +1!)ʿ 22- !$" #'+ʿ)&,& 'B@&8#,&ʿ (&+!, @&(ʿ
+)$--ʿ)$4&ʿ @&&'ʿ $22,#4&(ʿ "#ʿ %$:&ʿ $'?ʿ 5,&+&'"%&'"ʿ ")&,&12#'

ʿ '(ʿ @&ʿ "ʿ &'$!"&(ʿ)$"ʿ $"ʿ ")&ʿ 8 ,+"ʿ &&" ' .ʿ #8ʿ 2&! $-ʿ CDH 27ʿ DEʿ
&++ #'ʿ "#ʿ @&ʿ)#-(&'ʿ '&9"ʿ $8"&,ʿ ")&ʿ ++ L&+ʿ $"ʿ *) !)ʿ +1!)ʿ 22- !$Bʿ E #Eʿ" 7GD#ʿ
"#'ʿ +)$--ʿ)$4&ʿ @&&'ʿ +#ʿ !&," 8 &(ʿ $+ʿ $8#,&+$ (ʿ 8#,ʿ ")&ʿ +$%&ʿ $,#'?
#,ʿ $-8ʿ $,#'?6ʿ #,ʿ 8#,ʿ ")&ʿ #1''?ʿ $"ʿ -$,.&6ʿ $"ʿ *) !)ʿ +1!)ʿ 2Bʿ 23ʿ Z" H"ʿ
2- !$" #'ʿ +)$--ʿ)$4&ʿ @&&'ʿ %$(&6ʿ ")&ʿ #1''?ʿ 1,4&?#,ʿ +)$--ʿ -$?ʿ EIH" CC ʿ
")&ʿ 2&! 8 !$" #'+6ʿ $2+6ʿ 5-$'+6ʿ &!" #'+6ʿ #,ʿ -&4$" #'+ʿ 2,&2$,&(ʿ H23 #Eʿ E"27ʿ
$+ʿ $8#,&+$ (ʿ 'ʿ ,&+2&!"ʿ #8ʿ ")&ʿ +$%&ʿ @&8#,&ʿ ")&ʿ R1+" !&ʿ #,ʿ R1+" !&+ʿ $' (ʿ
&++ʿ 5$?&,+ʿ $++&%@-&(ʿ ")&,&$"6ʿ 8#,ʿ ")&ʿ ,ʿ #'+ (&,$" #' ʿ $' (ʿ +1!)ʿ C/ HDDGʿZ 3"ʿ
R1+" !&ʿ #,ʿR1+" !&+ʿ $' (ʿ &++ʿ 5$?&,+ʿ +)$--ʿ $' (ʿ ")&?ʿ $,&ʿ)&,&@?ʿ $1"@#Bʿ E2 O Dʿ 7] Dʿ
, L&(ʿ $' (ʿ ,&C1 ,&(ʿ "#ʿ &9$%ʿ '&ʿ +1!)ʿ 2&! 8 !$" #'+6ʿ $2+6ʿ 5-$'+6ʿ &!Bʿ CC7 ʿ
"#'+6ʿ #,ʿ -&4$" #'+6ʿ $' (ʿ +)$--ʿ (&! (&ʿ @?ʿ $ $>#, "?ʿ #8ʿ <# !&+ʿ *)&")&,ʿ
")&ʿ +$%&ʿ #1.)"ʿ "#ʿ @&ʿ $(#2"&(ʿ #,ʿ ,&>&!"&(6ʿ #,ʿ *)$"ʿ #(8 !$" #'ʿ #8ʿ
+1!)ʿ 2&! 8 !$" #'+6ʿ $2+6ʿ 5-$'+6ʿ &!" #'+6ʿ #,ʿ -&4$" #'+ʿ %$?ʿ @&ʿ
2,#2&,ʿ 'ʿ ,&+2&!"ʿ #8ʿ &$!)ʿ +1!)ʿ 22- !$" #'6ʿ $' (ʿ +)$--6ʿ 8ʿ '&&(ʿ @&6ʿ
(,&!"ʿ ")&ʿ #1''?ʿ 1,4&?#,ʿ "#ʿ $-"&,ʿ #,ʿ %#(8?ʿ ")&ʿ +$%&ʿ $!!#,(' .-?6ʿ
$' (ʿ "#ʿ 2,&2$,&ʿ $ʿ 2,#2&,ʿ #,%ʿ #8ʿ &' (&,ʿ 8#,ʿ ")&ʿ 9&!1" #'ʿ #8ʿ +1!)ʿ
E#,:+6ʿ &92,&++ ' .ʿ ")&ʿ $"1,&ʿ $' (ʿ 9"&'"ʿ #8ʿ +1!)ʿ E#,:+6ʿ $' (ʿ ")&ʿ
$"&, $-+ʿ 2,#2&,ʿ "#ʿ @&ʿ &%2-#?&(ʿ 'ʿ 2&,8#,% ' .ʿ $' (ʿ &9&!1" ' .ʿ ")&ʿ
+$%&6ʿ $' (ʿ ")&ʿ &,%ʿ * ") 'ʿ *) !)ʿ +1!)ʿ E#,:ʿ +)$--ʿ @&ʿ !#%2-&"&(6ʿ $' (ʿ
+1!)ʿ #")&,ʿ 5$," !1-$,+ʿ $+ʿ ")&ʿ +$ (ʿ 2&! $-ʿ &++ #'+ʿ +)$--ʿ ") ':ʿ 8 "ʿ "#ʿ
2,&+!, @&6ʿ $' (ʿ +)$--ʿ (&)4&,ʿ ")&ʿ 2&! 8 !$" #'+6ʿ $2+6ʿ 5-$'+6ʿ &!" #'+6ʿ
#,ʿ -&4$" #'+ʿ *) !)ʿ +)$--ʿ @&ʿ +#ʿ $22,#4&(ʿ "#ʿ ")&ʿ &!,&"$,?ʿ #8ʿ ")&ʿ
H,$' (ʿR1,?6ʿ $' (ʿ +)$--ʿ $22#ʿ '"ʿ ")&ʿ $' '&,ʿ 'ʿ *) !)ʿ #" !&ʿ 8#,ʿ ")&ʿ
&!& 2"ʿ #8ʿ +&$-&(ʿ &' (&,+ʿ $' (ʿ 5,#2#+$-+ʿ 8#,ʿ ")&ʿ 9&!1" #'ʿ #8ʿ +1!)ʿ
E#,:ʿ +)$)ʿ @&ʿ . 4&'6ʿ $' (ʿ ")&ʿ 5&, #(ʿ (1, ' .ʿ *) !)ʿ ")&?ʿ +)$--ʿ @&ʿ
,&!& 4&(ʿ ʿ $' (ʿ +1!)ʿ +&$-&(ʿ &' (&,+ʿ $' (ʿ 5,#2#+&+ʿ +)$--ʿ @&ʿ #2&'&(ʿ$"ʿ ")&ʿ
8 +"ʿ (>#,'%ʿ '&''ʿ #8ʿ +1!)ʿ 2&! $-ʿ &++ #'+ʿ "#ʿ @&ʿ %$(&ʿ 8#,ʿ #2&' ' .ʿ
+&$-&(ʿ &' (&,+ʿ $' (ʿ 5,#2#+$-+ʿ $' (ʿ ")&,&12#'ʿ +1!)ʿ 22- !$" #'+6ʿ $' (ʿ
+1!)ʿ &' (&,+ʿ $' (ʿ 5,#2#+$-+ʿ ,&-$"ʿ ' .ʿ ")&,&"#6ʿ +)$--ʿ @&ʿ '!-1(&(ʿ 'ʿ ")&ʿ
!)&(1-&ʿ #8ʿ 22)!$" #'+ʿ "#ʿ @&ʿ 2,&2$,&(ʿ $' (ʿ -$ (ʿ @&8#,&ʿ ")&ʿ H,$' (O
R1,?ʿ $"ʿ ")&ʿ ")&'ʿ '&9"ʿ +1!!&&(' .ʿ ++ L&+6ʿ $' (ʿ +)$--ʿ @&ʿ +1@>&!"ʿ "#ʿ
+1!)ʿ $' (ʿ ")&- :&ʿ &.1-$" #'+ʿ 'ʿ $--ʿ ,&+2&!"+ʿ $+ʿ #")&,ʿ 22- !$" #'+ʿ $' (ʿ
#")&,ʿ &' (&,+ʿ $' (ʿ5,#2#+$-+ʿ $,&ʿ +1@>&!"ʿ "#ʿ 1'(&,ʿ ")&ʿ 5,#4 + #'+ʿ #8ʿ
")+ʿ !"

ʿ '(ʿ @&ʿ "ʿ &'$!"&(ʿ)$"ʿ +#ʿ +##'ʿ $+ʿ %$?ʿ @&ʿ 2#++ @-&ʿ $8"&,ʿ H"DG I 7DEʿ
")&ʿ 2&! $-ʿ &++ #'+ʿ +)$--ʿ)$4&ʿ @&&'ʿ)#-(&'ʿ $"ʿ 7 ʿ ")&ʿ 5-$!&+ʿ $' (ʿ .ʿ CC7 H2/ʿ
%&+ʿ $22#ʿ '"&(ʿ ")&,&8#,ʿ 'ʿ &$!)ʿ #1''?ʿ ")&ʿ &!,&"$,?ʿ #8ʿ ")&ʿ H,$' (ʿ 3 #Eʿ3 ʿODʿ
R1,?ʿ +)$--ʿ 2,&2$,&ʿ $' (ʿ %$:&ʿ !)&(1-&+ʿ #8ʿ ")&ʿ #'"&''+ʿ #8ʿ $V 22- !$Bʿ C/DC2/DGʿO6ʿ
"#'+6ʿ +$4&ʿ $' (ʿ &9!&2"ʿ ")&ʿ 22- !$" #'+ʿ "#ʿ @&ʿ !&," 8 &(ʿ $+ʿ)&,& 'B@&8#,&ʿ 3"Dʿ DH/D^
2,#4 (&(6ʿ $22,#4&(ʿ #8ʿ *)#--?ʿ #,ʿ 'ʿ 2$,"6ʿ $' (ʿ *) !)ʿ %$?ʿ)$4&ʿ @&&'ʿ 32/6!ʿ 2#Gʿ
(&- 4&,&(C/ #3DG

(&- 4&,&(ʿ "#ʿ) %ʿ 8#,ʿ +1!)ʿ 51,2#+&ʿ @?ʿ ")&ʿ)$,%$'ʿ $"ʿ &$!)ʿ &++ #'+6ʿ '!-1('.ʿ 'ʿ #'&ʿ !)&(1-&ʿ $--ʿ +1!)ʿ 22)!$" #'+ʿ 8#,ʿ E#,:+ʿ 2,#2#+&(ʿ "#ʿ @&ʿ !)$,.&(ʿ $'(ʿ,$ +&(ʿ #'ʿ ")&ʿ #1'"?ʿ $"ʿ -$,.&6ʿ $'(ʿ 'ʿ #")&,ʿ +&2$,$"&ʿ !)&(1-&+ʿ I ,ʿ '&ʿ 8#,ʿ &$!)ʿ $,#'?ʿ #,ʿ $-8ʿ $,#'?6[ʿ $--ʿ +1!)ʿ 22- !$" #'+ʿ 8#,ʿ E#,:+ʿ 2,#2#+&(ʿ "#ʿ @&ʿ -&4 &(ʿ 12#'ʿ &$!)ʿ $,#'?ʿ $'(ʿ ʿ $-8ʿ $,#'?6ʿ $,,$'. '.ʿ $Vʿ +1!)ʿ 22- !$" #'+ʿ 'ʿ $-2)$@&" !$-ʿ ,(&,6ʿ $'(ʿ '#" '.ʿ #'ʿ ")&ʿ $!&ʿ #8ʿ &$!)ʿ !)&(1-&ʿ ")&ʿ 5$," !1-$,+ʿ #8ʿ ")&ʿ 3&! + #'ʿ #8ʿ ")&ʿ R1+" !&ʿ #,ʿ R1+" !&+ʿ $'(ʿ &++ʿ 5$?&,+ʿ #'ʿ &$!)ʿ 22- !$N "#'ʿ ʿ $'(ʿ +1!)ʿ &!,&"$,?ʿ +)$--ʿ 8#,")*")ʿ !$1+&ʿ #2 &+ʿ #8ʿ +1!)ʿ !)&(1-&+ʿ "#ʿ @&ʿ 2, '"&(ʿ $'(ʿ (+",@1"&(ʿ 'ʿ +1!)ʿ $''&,ʿ $+ʿ +)$--ʿ)$4&ʿ @&&'ʿ $1")#, L&(ʿ $'(ʿ (,&!"&(ʿ @?ʿ H,$'(ʿ R1,?ʿ 5,&+&'"%&'ʿ $"ʿ ")&ʿ ++ L&+ʿ %%&($"&-?ʿ 2,&!&('.ʿ $'(ʿ ")&ʿ +$ (ʿ &!,&"$?ʿ +)$--ʿ (&- 4&,ʿ $ʿ #>[?ʿ #8ʿ +1!)ʿ !)&(1-&+ʿ "#ʿ &$!)ʿ .)ʿ)&, 88ʿ #8ʿ ")&ʿ #1'"?ʿ 8#,ʿ ")&ʿ %&ʿ @& '.6ʿ $'(ʿ "#ʿ &$!)ʿ #1'"?ʿ 1,4&?#,6ʿ $'(ʿ +)$--ʿ #'ʿ ")&ʿ 3$?ʿ *)&'ʿ ")&ʿ H,$'(ʿ R1,?ʿ +)$--ʿ @&ʿ '&9'ʿ %2$''&--&(6ʿ $+ʿ)&,& 'B$8"&,ʿ (,&!"&(6ʿ (&- 4&,ʿ '&ʿ #2?ʿ #8ʿ ")&ʿ +$ (ʿ 2, '"&(ʿ !)&(1-&+6ʿ "#.&")&,ʿ *")ʿ ")&ʿ +&4&,$-ʿ 22- !$" #'+6ʿ $'(ʿ $''&9&(ʿ ")&,&"#ʿ $'?ʿ 2&! 8 !$" #'+6ʿ $2+6ʿ 5-$'+6ʿ &!" #'+6ʿ #,ʿ -&4$" #'+ʿ #8ʿ ")&ʿ E#,:+ʿ "#ʿ *) !)ʿ +1!)ʿ 22- !$" #'+ʿ +)$--ʿ ,&-$"&ʿ *) !)ʿ +)$--ʿ)$4&ʿ @&&'ʿ 2,&2$,&(ʿ @?ʿ ")&ʿ #1'"?ʿ 1,4&?#,6ʿ $'(ʿ $'?ʿ #'",$!"ʿ *) !)ʿ +)$--ʿ)$4&ʿ @&&'ʿ %$(&ʿ 8#,ʿ ")&ʿ 5&,8#,%$'!&ʿ #8ʿ +1!)ʿ E#,:+6ʿ "#ʿ ")&ʿ #,&',$'ʿ #8ʿ +1!)ʿ H,$'(ʿ R1,?6ʿ $'(ʿ +)$--ʿ $-+#ʿ (&- 4&,ʿ $'#")&,ʿ #2?ʿ #8ʿ ")&ʿ +$ (ʿ !)&(1-&+ʿ "#ʿ ")&ʿ R1(.&ʿ #8ʿ ++ L&ʿ 12#'ʿ)+ʿ ,, 4$-ʿ $'(ʿ ")&ʿ +$ (ʿ &!,&"$?ʿ +)$--ʿ :&&2ʿ $'#")&,ʿ #2?ʿ #8ʿ ")&ʿ +$ (ʿ !)&(1-&ʿ 'ʿ)+ʿ 88 !&6ʿ 8#,ʿ ")&ʿ '+2&!" #'ʿ #8ʿ ")&ʿ 51@- !6ʿ (1, '.ʿ),&&ʿ !#%2-&"&ʿ 3$?+ʿ $"ʿ -&$+ʿ %%&($"&-?ʿ @&8#,&ʿ ")&ʿ 3$?ʿ *)&'ʿ +1!)ʿ H,$'(ʿ R1,?ʿ +)$--ʿ @&ʿ 8 ,+ʿ %2$''&--&(ʿ $+ʿ)&,& 'B$8"&,ʿ 2,#4 (&(

DH/D32/6ʿ .ʿ /2#Gʿ, I/6ʿ 3 ʿ C72HDʿ #ʿ E3Eʿ 3"Dʿ 4/ EEʿ I/2ʿ /ʿ I OEʿ C/D^ ED#3DGʿ O6ʿ 3"DO

ʿ 5,#4 (&(ʿ $-*$?+6ʿ $'(ʿ @&ʿ 'ʿ &'$!"&(ʿ)$"ʿ ")&ʿ &!,&"$,?ʿ 28ʿ &$!)ʿ H,$'(ʿ R1,?ʿ $"ʿ $--ʿ %&+ʿ)&,&$8"&,6ʿ 'ʿ ")&ʿ 5,&2$,$" #'ʿ #8ʿ $--ʿ 2, '"&(ʿ +"+ʿ #8ʿ 5,&+&'"%&'"+ʿ .,$'"&(ʿ @?ʿ +1!)ʿ H,$'(ʿ R1,?6ʿ +)$--ʿ 2-$!&ʿ 'ʿ $ʿ +&2$,$"&ʿ 5$.&ʿ 28ʿ +1!)ʿ +"+ʿ ")&ʿ .,#++ʿ 1%ʿ #,ʿ 1%+ʿ #8ʿ #'&?ʿ *)!)ʿ +)$--ʿ)$4&ʿ @&&'ʿ 2,&+&'"&(ʿ @?ʿ +1!)ʿ H,$'(ʿ R1,?ʿ 1'(&,ʿ ")&ʿ $*+ʿ '#*ʿ 'ʿ 8#,!&6ʿ 1'(&,ʿ *)!)ʿ 'ʿ +ʿ %2&,$"ʿ 4&ʿ #'ʿ +1!)ʿ H,$'(ʿ R1,?ʿ 8#,ʿ 4$,#1+ʿ 21@- !ʿ &,4 !&+ʿ "#ʿ 2,&+&'ʿ !&,"$ 'ʿ 1%ʿ #,ʿ 1%+ʿ #8ʿ #'&?ʿ $+ʿ ")&,& 'ʿ (,&!"&(

/D2E I/D/ʿ 3 ʿ 2CC7D3ʿ 3"Dʿ I/2ʿ /D^ \I /DG!ʿ 2#Gʿ /D3I/#ʿ 3"Dʿ CC7 3O D#3ʿ 3 ʿ 3"Dʿ /2#Gʿ , I/6

<ʿ '(ʿ @&ʿ 'ʿ &'$!"&(ʿ)$"ʿ +#ʿ +##'ʿ $+ʿ ")&ʿ &!,&"$,?ʿ #8ʿ ")&ʿ H,$'(ʿ R1,?ʿ #8ʿ &$!)ʿ #1'"?ʿ +)$--ʿ)$4&ʿ %$(&ʿ +1!)ʿ !)&(1-&6ʿ $'(ʿ "#""&(ʿ 12ʿ ")&ʿ %#1'"ʿ #8ʿ ")&ʿ 1%+ʿ ,&C1 ,&(ʿ @?ʿ ")&ʿ +&4&,$-ʿ 22)!$N "#'+6ʿ *")ʿ ,&8&,&'!&ʿ "#ʿ ")&ʿ #'",$!"+ʿ ,&-$" '.ʿ ")&,&"#6ʿ "#ʿ @&ʿ ,$ +&(ʿ $ʿ +1!)ʿ ++ L&+ʿ #'ʿ "8&ʿ #1'"?ʿ $"ʿ -$,.&6ʿ ")&ʿ ,&$+1,&,ʿ #8ʿ +1!)ʿ #1'"?ʿ +)$)6ʿ $22#,"#'ʿ ")&ʿ +$%&ʿ $!!#,('.ʿ "#ʿ ")&ʿ 1+1$-ʿ #(&ʿ #8ʿ ++&++%&'"#'ʿ ")&ʿ ,&+2&!" 4&ʿ $,#'ʿ &+ʿ #,ʿ $-8ʿ $,#'ʿ &+ʿ *)!)ʿ 2N 2#,"#'%&'"6ʿ "#.&")&,ʿ *")ʿ $ʿ #2?ʿ #8ʿ ")&ʿ 5,&+&'"%&'"+ʿ %$(&ʿ $"ʿ ")&ʿ 2,&!&('.ʿ ++ L&+6ʿ)&ʿ +)$--ʿ ,&"1,'ʿ "#ʿ ")&ʿ #,&%$'ʿ #8ʿ ")&ʿ H,$'(ʿ R1,?ʿ $"ʿ ")&ʿ %&ʿ *)&'ʿ ")&?ʿ +)$--ʿ @&ʿ 8 ,+ʿ %2$''&--&(6ʿ $+ʿ)&,& 'B$8"&,ʿ 2,#N 4 (&(

> 4"ʿ "D/ ..ʿ 3 ʿ E/2C2##D7 /2#Gʿ, I/6ʿ # 3ʿ O /Dʿ 3"2#ʿ A FD

<ʿ '(ʿ @&ʿ 'ʿ &'$!"&(ʿ)$"ʿ &4&,?ʿ)&, 88ʿ +)$--6ʿ %%&($"&-?ʿ #'ʿ ,&!&4 '.ʿ ")&ʿ 5,&!&2"ʿ $22#'"ʿ '.ʿ ")&ʿ 3$?ʿ 8#,ʿ #2&ʿ '.ʿ ")&ʿ #%%++ #'ʿ $"ʿ ")&ʿ '&9'ʿ ++ L&+ʿ 0ʿ)+ʿ $- * !:6ʿ '+2&!"ʿ ")&ʿ !)&(1-&+ʿ "#ʿ @&ʿ (&)4&,&(ʿ "#ʿ)ʿ %ʿ $+ʿ $8#,&+$ (6ʿ $'(ʿ !#'8&,ʿ ")&,&#'ʿ *")ʿ ")&ʿ 1,4&?#,ʿ #,

;ʿ 1,4&?#,+

21,4&?#,+' "#' @&' $22# '"&(' 21,+1$'"' "#' ") +' !"6' $'(' ")&,&12#'6')$4 ' .' 2#G' # 3'7DEE'
,&.$,(' "#' ")&' T1$'" "?' #8' 1+ '&++' *) !)' "' +)$--' $22&$,' - :&-?' ")$"' 3"2#' ' #D'
")&' H,$'(' R1,?' %$?')&' !$--&(' 12#"' "#' ",$'+$!"6' +)$--' 8 9' $'(' $22# '"' H7D2/' * 26'
8#,' %2$''&-- ' .' ")&' H,$'(' R1,?6' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"' OD. /D 3"D'
U)&,& 'B$8"&,' +&"' 8#,")6' +1!)' 3$?' 2,&4 #1+' "#' ")&' 3$?' 8#,' #2&' ' .' C #3DG'. /'
")&' #%% ++ #"' #8' ++ L&' $+' "') +' 3 +!,&" #"' %$?' +&&%' 8 "6' +1!)' ' CD# #4' 3"D'
&$,- &,' 3$?' '#"' @&' ' .' %#,&' "- $"' 4&' !-&$,' 3$?+' $'(' '#"' -&++' ")$"' (O O EE #'
'&' !-&$,' 3$?' @&8#,&' ")&' 3$?' $22# '"&(' 8#,' #2&' ' .' ")&' +$ (' #%N 23' D2H"' E^
% ++ #"' ' $'(' +1!)')&, 8 ' +')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(6' "' E dDE
%$''&,')&,&"#8#,&' 2,$!" +&(' $!!#,(' .' "#' $*' 8#,' +1%%#' ' .' 5&,+#'+'
"#' +&,4&' #"' H,$'(' R% &+' "' "#' +1%%#"' $'(' ,&"1,"' $' +188 ! &'"'
1%@&,' #8' 5&,+#'+6' C1$- 8 &(' $!!#,(' .' "#' $*' "#' +&,4&' $+' H,$'('
R1,#,+' "' ' "#' $""&'(' $"' ")&' 1+1$-' 5-$!&' #8')#-(' .' ++ L&+'
12#"' ")&' 3$?' @?' +1!)')&, 8-8' +#' 8 9&(' $'(' $22# '"&(' $'(' ")&' 5&,N
+#'+' +#' "#' @&' +1%%#'&(' $,&')&,&@?' ,&C1 ,&(' "#' !#%&' ' $22&$,'
$.,&&$@-?' "#' ")&' 9 .&'!?' #8' +$ (' 1%%#'+6' 1'(&,' - :&' 5&'$-" &+'
$'(' +1@>&!"' "#- :&' #,8& "1,&6' #8' ++1&+' $+' 5&,+#'+')&,&"#8#,&' +1%%#'&('
"#' $22&$,' $'(' +&,4&' #"' H,$'(' R1, &+' $"' $'?' ++ L&+' "),#1.)#1"' F'
' $'(' "#' +&,4&' 1'(&,' $'(' +1@>&!"' "#' ")&' - :&' 5&'$-" &+' $'(' $@ - N
" &+' 1'" -' (+!)$,.&(' 8 #%' +1!)' ""&'($'!&' "' (1&' #1,+&' #8' $*'
$'(' #"' ")&' 3$?' $22# '"&(' 8#,' +1!)' ""&'($'!&' +1!)')&, 8' +)$--'
$""&'(' * ")') +' 1@B)&, 8' $'(' ++ +"$'"+6' $'(' +)$--6' #,' "")&' '&!&+N
+$,?' @+&'!&' #8' ")&')&, 8' ")&' V'(&,')&, 8' +)$--6' 2,#!&&(' "#' %2$''&-'
")&' +$ (' H,$'(' R1,?' "$--' ,&+2&!"+6' +#' 8$,' $+' %$?' @&' 2#++ @-&6' $'(' * ")'
- :&' #-&%' " &+6' $+')&,&"#8#,&' 2,$!" +&('$!!#,(' .' "#' ")&' $*' 8#,' ")&'
%2$''&-)' .' #8' H,$'(' R1, &+' $"' ")&' +&4&,$-' ++ L&+' "' -' $'(' ")&'
-&,:' #8' ")&' ,#*' "' +)$--' $""&'(' $"' ")&' %&' $'(' 5-$!&' $8#,&+$ (6' $'('
+)$--6' "' +1!)' $''&,' $'(' #,%' $+')$")')&,&"#8#,&' @&&"' 1+&(' "' ")&'
+ *&$, ' .' #8' H,$'(' R1,#,+' @&8#,&' ")&' R1(.&' #8' ++ L&+6' $(% ' +"&,' "#'
&$!)' #8' ")&' H,$'(' R1,#,+' "#' @&' %2$''&--&(' $+' $8#,&+$ (' ")&' $");
8#--#* ' .' X")$"' +' "#' +$?6[

V' +)$--' (- .&'"-?' 'C1 ,&6' #"' @&)$-8' #8' ")&' #1'"?6h#,' #1'"?' #8' ' 23"' .'
"?6' #1'"?' #8' #*'6' ' "?' $'(' #1'"?6i' #8' $'(' /2#G' , I / /!
",1&' 5,&+&'"%&'"' %$:&' #8' $--' +1!)' $""&,+' $'(') ' .+' $+' +)$--' @&'
-$*81--?' . 4&'' "#' ?#1' "' !)$,.&' #,' $+' +)$--' !#%&' @&8#,&' ?#1' "' $'?N
* +&' ,&-$" ' .' "#' ")&' ,$ + ' .' #8' $'?' #'&?' 12#"' ")&' +$ (' #1'"?'
h#,' #1'"?' #8' "?6' #1'"?' #8' #*'6' #,' "?' $'(' #1'"?6i' #8'
#,' 12#"' $'?' $,#'?6' $-8' $,#'?6' #,' 5$, +)' ")&,& '6'
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V+$.&6' #,' 1+"#%' "#' ")&' !#'",$,?' '#"* ")+"$'('.6' $'(' $+' 8' +1!)'
H,$'(' R1,?' *&,&' $-"#.&")&,' !#%2#+&(' #8' ,&&)#-(&,+

(D/32 #' '.. HD/E' # 3' 3 'ED/FD' #' '/2#' I/DE'

' '(' @&' "&'$!"&(')$" " +)$--' '#" @&' -$*81-' 8#,' $'?
5&,+#'' *)#' +)$--' @&' $' "2&'($,?' $.+",$"&' #,' ,&$+1,&,' #8' ")&'
#1'"?6' #,' &!,&"$,?' #8' ")&' H,$'(' R1,?6' 1,4&?#,' #,' .)' #'B'
#--&!"#,' #8' $'?' $,#'?' #,' $-8' $,#'?6' #,' -&,:' #8' ")&
,#*'6' #,' -&,:' #8' ")&' 5&$$!&6' "#' +&,4&' 12#'' ")&' H,$'(' R1,?' $" $'?'
++ L&+' #,' $'?' 2&! $-' &++ #'+' "#' @&')#-(&'' 1'(&,' ")&' 5,#4 + #'+' #8'
")+' !" 8&'' ")&' #1'"?' #,' #1'"?' #8' $'?' ' #,' #1'"?' #8' $'?'
#*'' *") '' +1!)' #1'"?' *)&,& '')&' +)$--')#-(' +1!)' 88 !&6' $'?'
$*6' V+$.&6' #,' 1+"#%' "#' ")&' !#'",$,?' '$'?* +&' '#"* ")+"$'('.

+ ZD/' .' /2#G' , I/6' 3 'C/DED#3' /' !$"#'+' A'

<' '(' @&' "&'o !"&(')$" +1!)' H,$'('R1,?' %2$''& &('$+'
$8#,&+$ (' +)$--')$4&' 5#*&,' $'(' 1")#, "?' "#' 2,&+&'" $'?' E#,:' #,'
) '.' 8#,' *) !)' $"' 22- !$"#'' +)$--')$4&' @&&'' +#' -#(.&(' $+' $8#,&B'
+$%&' +)$--')$4&' @&&'' $22,#4&(' $" " ,&' &++ #'+' "#' @&
)#-(&'' 1'(&,' ") +' !" 8#,' ")&' #'+ (&,$" #'' #8' +1!)' 22- !$"#'+6' #8'
"#' 2,&+&'" +1!)' 5$,"B ,' #(8 !$"#'' #8' ")& R<B#,:' #,') '.' +#' $22- &(
8#,

L B (2C Q U

8#, $+ %$?)$4& @&&' $22,#4&($+ $8#,&+$ (6 #, "# ,&>&!" +1!) 22- N
!$" #' $-"#.&")&,6 $'("# $--#* #, (+$--#* $+ +1!) H,$'(R1,? %$?
") ' : 8 " ")& 22- !$" #'+ "# @& %$(@? #'",$!"#,+ #, #")&, 5&,+#'+6
#, 8#, 5$?%&'" #8 $-$, &+6 $+)&,& 'B$8"&, 2,#4 (&(6 & ")&, ' 2$," #,
' *)#-&] 5,#4 (&($-*$?+6 ")$" '# 22- !$" #'+ 8#, %$: '. $'? '&*
#$(6 #, @1 -('. $'? ,(.&6 #, &,&!" '.6 &'-$,. '.6 ,&2$, '.6 #,
,&@1 -('. $'? H$#-6 #1," #1+&6 &++ #'+ #1+&6 #, #")&, #1+&
#, 1 -('.6 ")& 92&'!& *)&,&#8 +)$-- &9!&&(")& 1% #8 *&'"?
5#1'(+6 +)$-- @& 2,&+&'"&($" $'? ++ L&+6 1'-&++ " +)$-- $22&$, "# ")&
1"6 @? ")& &," 8 !$"& #8 ")& #,&%$' #8 ")& H,$'(R1,? $" ")&
2,&!&('. ++ L&+6 ")$" +1!) 22- !$" #')$(@&&' -$ (@&8#,& ")&
H,$'(R1,? $" +1!) 2,&!&('. ++ L&+

< '( )& " &'$!"&( )$" 8,#% $'($8"&, ")& #%%&'!&B /2#G ,1/ DE
%&'" #8 ") + !" " +)$-- '#" @& -$*81- 8#, $'? H,$'(R1,?6 $'? $*6 "#
V+$.&6 #, 1+"#% "# ")& !#'",$,? '#"* ")+"$'('.6 "# %$:& $ 5,&+&'"B
%&'" 8#, $'? 21@- ! E#,: *)$"+#&4&,6 #, 8#, ,$+ '. $'? #'&?6 8#, ,$+ '.
*) !) $' 22- !$" #' +)$-- '#")$4& @&&' -#(.&($'($22,#4&($" B #D6!
&++ #'+6 & ")&, *)#--? #, ' 2$,"6 $+)&,& 'B@&8#,& 2,#4 (&(6 +$4& $'(1#7DEE $"
&9!&2" +1!) 5,&+&'"%&'"+ $+ %$? @&)&,& 'B$8"&, +2&! $--? 8
$'($-+# +$4& $'(&9!&2" +1!) 5,&+&'"%&'"+ $+ %$? " '&!&++$,? %$(&$'(
")& %%&($"& &2$;+ #8 +1((&' ,&$!)&+ #, ' * $22,#4&($"
,(.&+6 H1--&"+6 E$--+6 #, 1 -('.+6 *) !) +)$--)$4&)$22&'&(+# 2&! $-
,&!&'"-? $+ '#" "# $(% " #8")& 2,#2&, 22- !$" #')$4 '. @&&' %$(& K
' %$''&, @&8#,& 2,#4 (&(6 *) !) $!"6 "#.&")&, * ") ")& &!&++ "?
8#, ")& %%&($"& 9&!1" #' #8 +1!) &2$,+6 +)$-- @& 2,#4&(@&8#,&
")& H,$'(R1,? 12#' $") $'(' +1!) $+&6 $-")#1.) +1!) 22- N
!$" #' $+ $8#,&+$ (+)$-- '#")$4& @&&' -#(.&(#, $22,#4&($+ $8#,&+$ (6
+1!) H,$'(R1,? +)$-- '&4&,")&-&++)$4& 5#*&, $'(1")#, "? "#
2,&+&'" 8#, +1!) &2$,+ $'? 1% #8 #'&? ' +1!) $+& '&!&++$,?
"# @& 2$ ("# ")& 1,4&?#, #, #'& #8 ")& 1,4&?#,+ $22# '"&(1'(&,
") + !"6 $'("# @& @?) % &92&'(&(6 #, +# %1!) ")&,&#8 $+ %$? @&
'&!&++$,? "# @& &92&'(&(12#' +1!) &2$,+6 $'($!!#1'"&(8#, $"
")& '&9" ++ L&+6 ' - :& $''&, $+ @&8#,& ")& 2$++ '. #8 ") + !"
")& 4&,+&&, %$?)$4& @&&' ,&C1 ,&("# $!!#1'" $'(")& ,&$+1,&,
#8 ")& #1'"? +)$--6 #1" #8 $'? #' &+ ') + $'(+ 4 -$@-& "# ")&
.&'&,$- 51,2#+&+ #8")& #1'"?6 $(4$'!& "# +1!) 1,4&?#, 8,#% %&
"# %& ")& #' &+6 '#" &9!&&('. ")& 1% 2,&+&'"&(8#, +1!)
&2$,+6 *) !) %$? @& ,&C1 ,&(")&,&8#, $'(+1!) #' &+ +#
$(4$'!&(+)$-- @& ,&2-$!&(@? ")& #' &+ ,$ +&($'(-&4 &(1'(&,
")& 5,&+&'"%&'" *) !) ")& H,$'(R1,?)$4& @&&')&,& 'B@&8#,&
$1")#, L&("# %$:& 8#, +1!) 51,2#+&

< 5,#4 (&(6 $'(@& " &'$!"&( )$" '#") '. ' ") + !" 2F #4 #8
!#'"$ '&(+)$-- @& !#'+",1&("# - % " #, $8&&!" ")& 31"? $'(1")#, "? 5,&+&'"B
#8 H,$'(R1,#,+ "# %$:& 5,&+&'"%&'"+6 21,+1$'" ! 7,+1$>$7"#7
#,(&1"&'$'" #, #")&,) &8 H#4&,'#, #, H#4&,'#,+ #8 '/GD/ #8
8#, &2$?%&'" #8 #' &+ $(4$'!&(@?) + ,(&, 2 $
,"?6 '#, "# $8&&!" ")& 5#*&,+ $'(1")#, "&+ #, 31" &+ * "&'$'"6 /
12#' #, @&-#'. '. "# $'? 5&,+#' #, 5&,+#'+ '$%&(' #, . &
@? 4 ,"1& #8 $'? !" #8 5$,-$%&'" '#* ' 8#,!&
,&!" #' #, $ '"&'$'!& #8 $'? #1," #, &++ #'+ #1+&6 #,
5, +#'6 #, #")&, +2&! $-7 21@- ! E#,: #, +"$@- +)%&'"6 +$4& $'(CIO7H@ /]
A &9!&2"

U ' L ' L B ' ' (2C 2

&9!&2" ")$" $-- ")&'5,&+&'"%&'"+ #8 $'(' !#'!&,' '.'")& $""&,+ $8#,&N
+$ (' +)$-- @& ",$'+$!"&(6 "#.&")&,' ? ")' ")& #")&,' 8 +!$- 1+ '&++ #8 ")&
#1'"?6 @&8#,& ")& #2&' '.' #8")& #%% ++ #'' $" &$!)' ++ L&+] 5,#N
4 (&(' '&4&,")&-&++6 ")$" " +)$>- $'(' %$? @& -$*81- ' $'? H,$'('
R1,? $" &$!)' $'(' &4&,? ++ L&+ "# 2,&+&'"6 $" $'? %& @&8#,& ")&?
$A& (+!)$,.&(6 +1!)' 1%' #,' 1%+ #8 #'&? $+' +)$-- @& #,(&,&(' @?
")& #1," "# @& 2$ (' "# E "'&++&+ 8#,' ")& ,' 92&'!&+6 $'(' 8#,' ")&
,$'+% ++ #'' #8 5, +#'&,+6 $+ $" 2,&+&'" @? $*' (,&!"&(

DECHH3 #4' 3 7D' CC #3^ 0 D#3' .' (I#36' I/^ FD6 /E

< ' '(' @& " &'$!"&(6 ")$" ")& #,(' &1"&'$'" #,' #")&,'
) &8 H#4&,'#,' #,' H#4&,'#,+ ' ' +)$-- 8,#%' %& "# %&
$22# '" $ #$,(' '),&& 4('#,' -"$,? ' . '&&,+ "# $!"6 * ")#1"
$-$,? #,' %#-1%&'"6 '' ' " ' *)# +)$-- 8,#%' %& "# %& &9$% '&
'"# $'(' !&," 8? ")& T1$- 8 !$" #'+ #8 $V R5&,+#8 + (&+ ,#1+ "# $!" $+ 7
1,4&?#,+ 1'(&,' ") + ! " ' $'('+1!)' #,(' &1"&'$'" #,' #")&,') &8
H#4&,'#,' #,' H#4&,'#,+ +)$-- $22# '" 8,#%' %& "# %&6 #1" #8 ")&
5&,+#'+ +# !&," 8 &(' '& #,' %#,& 1,4&?#,' #,' 1,4&?#,+ "# $!"6 $" ")&
$-$,? #,' $-$, &+)&,& 'B$8"&,'2,#4 (&(6 8#,' +1!)' #1'"? #,' #1'" &+6
$+ ")& +$ (' #,(' &1"&'$'" #,' #")&,') &8 H#4&,'#,' #,' H#4&,'#,+
+)$-- ") ' :' 8 "' $'(' " +)$-- @& -$*81- 8@,' ")& +$ (' #,(' &1"&'$'"
#,' #")&,') &8 H#4&,'#,' #,' H#4&,'#,+ 8,#%' %& "# %&6 $") + #,'
")& ,' 5-&$+1,&6 "# ,&%#4& +1!)' 1,4&?#,+ 8,#%' #1'"? "# #1'"?

' #D' I/^ FD6 /' 0 26' IH3' . /' Z ' H #3 4 I IE' (I#3 DE I/FD6 /E' 7 2O7D' 3 ' OD' G E O EEDG

< ' '(' @& " &'$!"&(')$"6 * ")' ")& #'+&'"$'(' 22,#B
@#" #'' #8 ")& ,&+2&!" 4& H,$'('R1, &+6 '& 5&,+#'' %$? @& $22# '"&('
"# $!" $+ $ 1,4&?#,' 8#,' *# !#'" .1#1+ #1'" &+'>' $'(' ")$" $-- 5&,+#'+
$22# '"&(' "# $!" $+ 1,4&?#,+ 1'(&,' ") + ! " %$? @& $" $'? %&
+1+2&'(&(' #,' (+% ++&(' $" ")& 5-&$+1,& #8 ")& #,(' &1"&'$'" #,'
#")&,') &8 H#4&,'#,' #,' H#4&,'#,+ #8 ' #,' @? ")& ,&+2&!" 4&
H,$'(' R1, &+ #8 +1!)' #1'" &+' $'(' '' +1!)' $+&6 $'(' #'' &4&,?
#")&,' <$!$'!?)#*&4&,' #!!$+ #'&(6 ")& #,(' &1"&'$'" #,' #")&,'
) &8 H#4&,'#,' #,' H#4&,'#,+ #8 ' +)$-- 8#,") * ")' $22# '" $
1!!&++#,' 8,#%' $'('#1" #8")& 5&,+#'+ *)# +)$-- @& 8,#%' %& "# %&
!&," 8 &(' "# @& C1$- 8 &(' $+ $8#,&+$ (' $'(' '' !$+& #8 '(+2#+ " #'' #,'
#")&,' 1'$4# ($@-& $1+&6 2,#4&(' #'' $") "# ")& $" +8$!" #'6#8 ")&
H,$'('R1,? #,' $'?),&& R1+" !&+ #8 ")& 5&$!&6 +1!)' 1,4&?#,' %$?
(&21"& $'#")&,' 5&,+#'6 (1-? !&," 8 &(' $+)&,& 'B@&8#,& %&'" #'&(6 "#
$!" 8#,') %6 $'(' +1!)' 3 &21"? +)$-- @& ,&%#4$@-& '' - :& $''&,' $+
) + 5, '! 2$-

I/FD6 /' 0 26' 2CC #3' * DC I 36' # H2ED' .' 77^ #DEE

272/ DE' .' 3"D' (I#36' I/FD6 /E'

' '(' @& " &'$!"&(6)$" ")& $-$? #8 &$!)' 1,4&?#,'
"# @& $22# '"&(' $+ $8#,&+$ (' +)$-- '#" &9!&&('),&&)1'(,&('
5#1'(+ ' * ' *) !)' %#1'" +)$-- @& '!-1+ 4& #8 $--)$,.&+
$'(' 92&'!&+ *) !)' &$!)' +1!)' 1,4&?#,' +)$-- '!1,6 &9!&2" $+
)&,& 'B$8"&,'2,#4 (&(6 #,' "# *) !)')& +)$-- @& - $@-& '' 5&,8#,%$'!& #8
")& +&4&,$- 3 1" &+ "#) %'2,&+!, @&('1'(&,' ")&5,#4 + #'+ #8") + ! " '
$'(' &$!)' H,$'('R1,? +)&,&@? $1")#, L&(' $'(' ,&C1 ,&(' "# 8 9 ")&
%#1'" #8 +1!)' $-$,?6 '#" &9!&&(' '.' ' *')&,& 'B@&8#,& %&'N
"#'&(6 $'(' $" &$!)' ++ L&+ "# 2,&+&'" $ # &"? #8 ")& $-$,? #,'
$-$, &+ #8 &$!)' 1,4&?#,'#,' 1,4&?#,+ 8#,' +1!)' #1'"? 8#,' ")& $-8
&$,' -$+" 2$++&(6 $'('5$?%&'" #8")& +$%& +)$-- @& %$(& $!!#,('.-? '
2,#4 (&(' '&4&,")&-&++6 ")$" " !$+& ")& H,$'('R1,? $" $'? ++ L&+
+)$-- @& #8 #2 ' #'' ")$" $'? 1,4&?#,')$+ @&&'' .1 -"? #8 &.-&!" #8
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%% B (2C Q U

) + 31"? #, #")&, +!#'(1!"6 +1!) H,$'(R1,? +)$--)$4& 1")#, "?
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(1!" '.) %+&-8 "# @& * "))&-(6 $'(+)$-- ,&2#," +1!) &.-&!" #,
+!#'(1!" "# ")& #,(&1"&'$'" #, #")&,) &8 H#4&,'#, #,
H#4&,'#,+ #8 - $'(8 ")& +$ (1,4&?#, +)$-- @&6 12#' +1!)
&2#,"6 #, $" $'? %&6 ' $'? #")&, $''&,6 #, 8#, $'? #")&,
&$+#'6 (+% ++&(8 ;#%6) + 88 !&6)& +)$-- 8#,8& "6 $" ")& 3 +!,&" #'
#8 ")& #,(&1"&'$'" #, #")&,) &8 H#4&,'#, #, H#4&,'#,+
#8 ")& *)#-& #, $'? 5$," #8 ")& ,,&$,+ #8 $-$,? (1& "#
) % $'(")& +$%& +)$-- @& $22- !$@-& "# ")& .&'&,$- 51,2#+&+ #8 ")&
#1'"?6 ' - :& $''&, $+ #")&, #' &+ 8,#%6 %& "# %& $, + '.
' ")& $'(+ #8 ")& ,&$+1,&,

'(@& " &'$!"&( )$" ")& 1,4&?#, #, 1,4&?#,+ "# @& 31"?#8 1,B
$22# '"&($+ $8#,&+$ (+)$-- $""&'($" &$!) 2&! $- &++ #'+ "# @& 7&?#,+
)&-(8#, ")& &!&2" #' #8 22- !$" #'+ 8#, 5,&+&'"%&'"+6 $'(+)$--
$88#,(+1!) 2,#8&++ #'$- (4 !& $'(++ +"$'!& ' ")& #'+ (&,$" #'
")&,&#8 $+ %$? @& ,&C1 ,&(#8) %6 $'(+)$-- 2,&2$,& #,%+ #8
&'(&,+ $'(5,#2#+$-+6 2&! 8 !$" #'+6 $2+6 5-$'+6 &!" #'+6 #, -&N
4$" #'+ #8 $'? E#,: $22,#4&(")&,&$"6 $'(+)$-- $-+# $""&'(12#' ")&
H,$'(R1,?6 $'(%$:& "# ")&%6 $ 81-- $'(2$," !1-$, &2#," #' $V
22- !$" #'+ 8#, 5,&+&'"%&'"+ -#(.&(* ") ")& &!,&"$,? $+ $8#,&+$ (6
$'(")& &!&++ "? #, V" - "? #8 ")& +$%&6 $'(#' ")& #,,&!"'&++ #8
")& $2+6 5-$'+6 2&! 8 !$" #'+6 $'(+" %$"&+ 2,&2$,&($+ $8#,&+$ (6
$'( )#* 8$, " %$? @& &92&(&'" "# $-"&,6 4$,?6 #, %#(8? ")& @>&!"+
+"$"&(' +1!) 22- !$" #'+ $'(")& +$ (1,4&?#, #, 1,4&?#,+6 #,
'& #8 ")&%6 +)$-- $-+# ,&2#," #' $-- 22- !$" #'+ #' 2$," #8 12&,N
4 +#,+ $'(4&,+&&,+6)&,&"#8#,& $22# '"&(6 $'(#' 2$," #8 #'",$!"#,+6
$'(#' ")& 5,#.,&++ $'(9&!1" #' #8 $-- 21@- ! E#,:+ 8#,%&,-? 2,&N
+&'"&(6 $'(#' ")& 5&,8#,%$'!& #8 $-- #'",$!"+6 $'(#' ")& "$"&6
&2$,+6 5,#.,&++6 $'(#'("#' #8 $-- 1-('.+6 #$(+6 ,(.&+6
H1--&"+6 E$--+6 #, #")&, E#,: $'(")& +$ (1,4&?#, #, 1,4&?#,+6
#, '& #8 ")&%6 $+ ")& H,$'(R1,? +)$-- (,&!"6 +)$-- $1(" $-- !!#1'"+
#8 +1!) E#,:+6 $'($+!&,"$ ' $'(!&," 8? ")& #,,&!"'&++ ")&,&#86 $'(
*)&")&, &$!) #'",$!"#, + &'" "-&("# 5$?%&'"6 $'( )#* 8$, $'(
*)&")&, +1!) #'"&$!"#,)$+ !#'8#,%&("# ")& 5,#4 + #'+ #8 ") +
!" $'(")& $*+ ' 8#,!& ' $'(+)$-- $-+# ,&2#," ")& $%&
$'(3&+!, 2" #' #8 $-- 5&,+#'+ @?) % 2,#+&!1"&(8#, $'? 1 +$'!& #,
'>1,?"# $'? #$(6 #, $'?#")&, 88&'!& #8 - :& $"1,&6 $'(")& &+1-"
#8 +1!) 5,#+&!1" #'6 $'(")& 5,#!&&('.+ ")&,& '6 $'(.&'&,$--? #' $--
$""&,+ $'( ) '.+ ,&-$" '. "# ")& 88 !& #8 1,4&?#,6 $+ $22# '"&(
$'(!,&$"&(1'(&, ") + !"6 #, $+ %$? @& . 4&' "#) % ' !)$,.& @?
")& H,$'(R1,?

'(@& " &'$!"&( )$" &$!) +1!) 1,4&?#, +)$-- @& $'(+ I/FD6 /E "#
)&,&@? '4&+"&(* ") $-- ")& 5#*&,+ $'(31" &+)&,&"#8#,& @&-#'. '. 5#4,&+
"# #, 4&+"&(' ")& #'+&,4$"#,+ #8 21@- ! E#,:+ ' - $'('#
#'+&,4$"#,+ #8 21@- ! E#,:+ +)$-- @& $22# '"&(#, !#'" '1& "# $!" ' FD/EDD/E!
' $'? #1'"? #, 5-$!& $8"&, +1!) 1,4&?#, +)$-- @& $22# '"&(")&,& '
$'(+1!) 1,4&?#, +)$-- $-+# @& "$:&' $'((&&%&("# @& $' 4&,+&&,
#8 $-- #, $'? $'(&4&,? 21@- ! E#,: #, E#,:+ * ") ' ")& #1'"? #,
#1'" &+ #, 5-$!& 8#, *) !))& +)$-- @& $22# '"&(#, $!" $'(")&
+$ (1,4&?#, +)$-- :&&2 $' 88 !& #2&' 8#,) + ,&.1-$, ""&'($'!& #'
1+ '&++

U ' $ ' ' B ' ' (2C Q

1+ '&++ ' +1!)' 5-$!&' $+ ")&' H,$'('R1,?' +)$-' $22# '"6' $'(' *) !)' ")&?' $,&')&,&@?' ,&C1 ,&(' $'(' &%2#*&,&(' "# $22# '"' $'(' ")&' +$(' 1,4&?#,' +)$-' &%2-#?' '&' 8 " $'(' !#%2&"&'" 5&,+#'' "# @&' $ -&,:' '')+' +$(' 88 !&6 *)#+ +)$--' . 4&' ,&.1-$,' ""&'($'!&' ' ")&' +$(' 88 !&6 $'(' 8#,' *)#+&' #'(1!" ")&' +$(' 1,4&?#,' +)$-' @&' $" $--' %&+' ,&N +2#'+ @-&' ' $'('+1!)' H,$'('R1,?' +')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' "# 2,&+&'" $' 1%' '#" &9!&&(' '.' 8"?' 5#1'(+' '' &$!)' &$,' "# (&8,$?' ")&' 92&'!&' #8' +1!)' 88 !&6 $'(' "# 2$?' ")&' $-$,?' #8' +1!)' -&,:6' $' # &"?' *)&,&#8' ")&' +$(' H,$'('R1,?' +' $1")#, L&(' $'(' ,&C1 ,&(' "# 2,&+&'" $" &$!)' ++ L&+' 8#,' ")&' $-8' &$,' -$+" 2$+"6' $'(' "# 2$?' ")&' +$%&' "# +1!)' 1,4&?#,' $!!#,('.-?6' +1@>&!" $-*$?+' "# ")&' 5,#4 + #'+')&,& 'B@&8#,&' !#'"$ '&(' * ")' ,&+2&!" "# ")&' 5$?%&'" #8' ")&' $-$,? #8' ")&' +$(' 1,4&?#,

I/FD6 /E' # 3' 3 ' . 7f' #,7' 7!A77AA ADDE!' # /' OD' #3D/DE3DG' # 2#6' (# 3/2H3

' '(' @&' " &'$!"&(')$" '# +1!)' 1,4&?#,' +)$-' @&' &- . @-&' #,' -$@-&' "# +&,4&' #,' $!" #' $'?' R1,?6' '#,' "# 8 -' $'?' #")&,' #1'"?' 88 !&' *)$"+#&4&,6' '#,' @&' $' 5$,"?' "# #,' '"&,&+"&(' '' $*' 22- !$" #'' ' 2' 5,&+&'"%&'"6' '#,' "$:&' #,' ,&!& 4&' $'?' &&' #,' H,$"1 "?' *)$"B' +#&4&,' 8,#%' $'?' #'",$!"#,' #,' #")&,' 5&,+#'' &'.$.&(' '' $'?' 21@- !' E#,:6' '#,' 8#,' $'?' $""&,' '/) '.' '' $'?* +&' $22&,"$ ' '.' "# ")&' 31"?' #8' +1!)' 1,4&?#,6' '#,' @&' #,' @&!#%&' '' $'?' $''&,' '"&,&+"&(' '' $'?' #'",$!" 8#,' ")&' 5&,8#,V $'!&' #8' $'?' E#,:' 2,&+&'"&(' #,' "# @&' 2,&+&'"&(' "# ")&' H,$'('R1,?6' #'' 2$ '' 8#,8& " '.') +' 88 !&6 * ")' $--' ,,&$,+' #8' $-$,?' ")&'' (1&' "# E%' ' $'('&4&,?' +1!)' #'",$!" '' *) !)' +1!)' 1 *&?#,' +)$-' @&' '/ @&!#%&' '' $'?' $''&,' '"&,&+"&(' +)$-' ")&'' $'(' ")&,&12#'' @&' $'(' @&!#%&' $@+#-1"&-?' 4# (6' $'(' ")&' 1,4&?#,' +# '"&,&+"&(' +)$-' 8#,8&" 8"?' 5#1'(+6' "# @&' ,&!#4&,&(6' * ")' 81-' #+"+' #8' 1 "6' @?' $'?' 5&,+#'' E)# +)$-' +1&' 8#,' ")& +$%&A

/2#G' , I / DE' # 3' 3 ' #2OD' +D/E #E' # + /DED#3^ OD#3E' O6' mF" O' @ /]E' 2/H' 3 ' OD' D&DH I 3DG

' '(' @&' " &'$!"&(')$" " +)$-' '#"6' 8 #%' $'(' $8"&,' ")&' #%%&'!&%&'" #8' ") +' !"6' @&' -$*81-' 8#,' $'?' H,$'('R1,?' '' %$: '.' $' 5,&+&'"%&'" 8#,' ")&' 9&!1" #'' #8' $'?' 21@- !' E#,:' "# '$%&' #,' $22# '")&,& '' $'?' 5&,+#'' #,' 5&,+#'+' "# &9&!1"&' ")&' +$%&6' #,' "# $!" $+' 4&,+&&,' #,' 4&,+&&,+' ")&,&#8' $+) ")&,"# $!!1+"#%&(6' +$4&' $'(' &9!&2" '' !$+&' #8' +1((&'' 3$%$.&' #,' '>1,?6' 1'(&,' ")&' 5,#4 + #'')&,& 'B@&8#,&' %$(&' '' ")$" &)$-86' $'(' $-+# +$4&' $'(' &9!&2" '' ")&' !$+&' #8' $'?' 21@- !' E#,:' ")&' #+" *)&,&#8' +)$-' '#" &9!&&(' 4&' 5#1'(+' '' ")&' *)#-&' $+')&,& 'B$8"&,' 2,#4 (&(' $'(' ")&' 88 !&' #8' 4&,+&&,' #,' 4&,+&&,+' +)$-' @&' $'(' ")&' +$%&' +')&,&@?' $@#- +)&(6' +$4&' $+ $8#,&+$ (' $'('$-' E#,:+6' +$4&' $+ $8#,&+$ (6' *) !)' +)$-' @&' 2,&+&'"&(' @?' $'?' H,$'('R1,?' +)$-' @&' &9!1"&(' $'(' 2&,8#,%&(' @?' #'",$!" %$(&' '' %$''&,')&,& 'B@&8#,&' 2,#4 (&(' $'(' ")&' 1'!" #'+' #8' $'?' H,$'('R1,?' +)$-6' ' ,&+2&!" #8' $-' 22- !$" #'+' "# @&' %$(&' "# $'?' 2&! $-' &++ #'+' 1'(&,' ") +' !"6' @&' - % "&(' "# ")&' 22,#4$-' #,' &>`]B' " #'' #8' ")&' +$%&' $+ $22,#4&(' #,' %#(8 &(' @?' +1!)' &++ #'+6' $'(' ")&' 5,&+&'"%&'" #,' $''1-- '.' ")&,&#8' $!!#,('.-?] 5,#4 (&(' $-*$?+6' ")$" '# &,4$'"6' #,' $'?' 5&,+#'' ' ")&' :'#*' %2-#?%&'" $+' &,4$'"6' #8' $'?' $. +",$"&' #,' H,$'('R1,#,6' +)$-' @&' &- . @-&' "# 1'(&,"$:&' $'?' #'",$!"6' #,' @&' $22# '"&(' "# $!" $+' 4&,+&&,6' 1'(&,' ") +' !",

'.. HD' .' ' FD/EDD/E' 7f' @ /]E' 3 ' OD' D&D^ H I 3DG' O6' (#3/2H3E

@ /]E' I#GD/' !9&!187AA@' 22-! " 7

< ' '(' @&' " &'$!"&(')$" '' ")&' $+&' #8' $'?' 21@- !' E#,: 92&'!&' *)&,&#8' +)$-' '#" &9!&&(' &'' 5#1'(+' '' ")&' *)#-&6' " +)$-' $'('%$?' @&' -$*8" ' 8#,' ")&' 5&,+#'' #,' 5&,+#'+' %$: '.'

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8#,ˢ ")&ˢ +$%&ˢ "#ˢ +2&! 8?ˢ ˢ +1!)ˢ 22- !$" #"ˢ ")&ˢ 1%ˢ 8#,ˢ *) !)ˢ)&ˢ #,ˢ
")&?ˢ $,&ˢ * -- ' .ˢ "#ˢ 1'(&,"$:&ˢ ")&ˢ 9&!1" #"ˢ #8ˢ +1!)ˢ E#,:+6ˢ +1@>&!"ˢ
"#ˢ ")&ˢ !#'(" #'$-ˢ 5,&+&'"%&'"ˢ ")&,&#8ˢ $'(ˢ "ˢ +)$--ˢ $'(ˢ %$?@&ˢ -$*81-ˢ
8#,ˢ ")&ˢ R1+" !&ˢ #,ˢ R1+" !&+ˢ $'(ˢ &++ˢ 5$?&,+ˢ $"ˢ 2&! $-ˢ &++ #'+6ˢ 8ˢ +1!)ˢ
22- !$" #"ˢ +)$--ˢ @&ˢ $22,#4&(ˢ ")&,&$"6ˢ $"ˢ ")& ,ˢ 3 +!,&" #'6ˢ "#ˢ $1")#, L&ˢ
X$'?ˢ ") ' .ˢ)&,& 'B@&8#,&ˢ !#'"$ '&(ˢ "#ˢ ")&ˢ !#'",$,?ˢ '#"* ")+"$'(' .[ˢ
")&ˢ 5&,+#'+ˢ #,ˢ & ")&,ˢ #8ˢ ")&%ˢ *)#ˢ +)$--ˢ)$4&ˢ %$(&ˢ 22- !$" #"ˢ 8#,ˢ
+1!)ˢ E#,:ˢ "#ˢ &9&!1"&ˢ ")&ˢ +$%&6ˢ ˢ ")&ˢ 4&'"ˢ #8ˢ ")&ˢ +$%&ˢ @& '.ˢ
2,&+&'"&(ˢ @?ˢ ")&ˢ H,$'(ˢ R1,?6ˢ @1"ˢ '#"ˢ #")&,* +&6ˢ $"ˢ $'(ˢ 8#,ˢ ")&ˢ 1%ˢ
ˢ +1!)ˢ 22- !$" #"ˢ +2&! 8 &(6ˢ $'(ˢ +1!)ˢ 22- !$" #"ˢ +)$--ˢ @&ˢ '!-1(&(ˢ
ˢ ")&ˢ !)&(1-&ˢ #8ˢ 22- !$" #'+ -$ (ˢ @&8#,&ˢ ")&ˢ H,$'(ˢ R1,?6ˢ $'(ˢ (&$-"ˢ
* ")ˢ ˢ - :&ˢ $''&,ˢ $+ˢ $'?ˢ #")&,ˢ 22- !$" #"ˢ '!-1(&(ˢ ")&,& ˢ $'(ˢ
")&ˢ 5&,+#"ˢ #,ˢ 5&,+#'+ˢ +#ˢ * -- ' .ˢ $'(ˢ (&+ ,#1+ˢ $'(ˢ +#ˢ $1")#, L&(ˢ "#ˢ
&9&!1"&ˢ +1!)ˢ E#,:ˢ +)$--ˢ @&ˢ 8#,ˢ $--ˢ ")&ˢ 51,2#+&+ˢ #8ˢ ") +ˢ !"ˢ (&&%&(ˢ
"#ˢ)$4&ˢ !#'",$!"&(ˢ 8#,ˢ ")&ˢ +$%&ˢ $"ˢ +1!)ˢ 1%6ˢ +1@>&!"ˢ "#ˢ ")&ˢ !#'N
(" #'$-ˢ 5,&+&'"%&'"ˢ ")&,&#86ˢ $'(ˢ +)$--ˢ &'"&,ˢ '"#ˢ ")&ˢ - :&ˢ &!1, "?ˢ
$'(ˢ #@+&,4&ˢ ")&ˢ - :&ˢ &.1-$" #'+ˢ ˢ $--ˢ ,&+2&!"+ˢ $+ˢ #'",$!"#,+ˢ 1'(&,ˢ
") +ˢ !"6ˢ $'(ˢ %$:&ˢ 22- !$" #"ˢ 8#,ˢ 5$?%&'"ˢ ˢ - :&ˢ $''&,

<ˢ '(ˢ)&ˢ "ˢ 8%")&,ˢ &'$!"&(ˢ)$"ˢ $--ˢ #'",$!"+ˢ *) !)ˢ $'?ˢ
H,$'(ˢ R1,?ˢ %$?ˢ)#*ˢ #,ˢ)&,&$8"&,ˢ @&ˢ $1")#, L&(ˢ "#ˢ %$:&ˢ #,ˢ &'"&,ˢ '"#ˢ
8#,ˢ ")&ˢ &2$,ˢ #8ˢ #$(+6ˢ #,ˢ 8#,ˢ $'?ˢ #")&,ˢ 51,2#+&ˢ *)$"+#&4&,6ˢ +)$--ˢ
)&,&$8"&,ˢ @&ˢ %$(&ˢ @?ˢ +&$-&(ˢ &'(&,+ˢ $'(ˢ 5,#2#+$-+6ˢ "#ˢ)&ˢ (&- 4&,&(6ˢ
#2&'&(6ˢ $'(ˢ (&$-"ˢ * ")6ˢ $'(ˢ &!1, "?ˢ "#ˢ @&ˢ "$:&'6ˢ ˢ - :&ˢ $''&,ˢ $+ˢ
)&,& 'B@&8#,&ˢ 2,#4 (&(ˢ * ")ˢ ,&+2&!"ˢ "#ˢ #'"$!"+ˢ 8#,ˢ ")&ˢ 5&,8#,%$'!&ˢ
#8ˢ E#,:+ˢ !#%2,+&(ˢ ˢ 5,&+&'"%&'"+ˢ "#ˢ @&ˢ %$(&ˢ $8"&,ˢ ")&ˢ #%%&'!&N
%&'"ˢ #8ˢ ")+ˢ !"ˢ ")&ˢ %#1'"ˢ #8ˢ +1!)ˢ &!1, "?ˢ ˢ +1!)ˢ $+&+ˢ "#ˢ @&ˢ
8 9&(ˢ @?ˢ ")&ˢ H,$'(ˢ R1,?6ˢ $'(ˢ +"$"&(ˢ ˢ ")&ˢ 5,&+&'"%&'"+ˢ 8#,ˢ +1!)ˢ
#'",$!"+] 5,#4 (&(ˢ $-*$?+6ˢ ")$"ˢ '#ˢ +1!)ˢ #'"$!"+)$--ˢ @&ˢ &'"&,&(ˢ
'"#6ˢ '#,ˢ $'?ˢ 5,&+&'"%&'"ˢ %$(&ˢ ")&,&12#'6ˢ +$4&ˢ 12#"ˢ $'(ˢ $8"&,ˢ $"ˢ
22- !$" #"ˢ %$(&ˢ $'(ˢ $22,#4&(ˢ $"ˢ 2&! $-ˢ &++ #'+ˢ $+ˢ)&,& 'B@&8#,&ˢ
2,#4 (&(ˢ $'(ˢ 2,#4 (&(ˢ 81,")&,6ˢ ")$"ˢ '#")ˢ '.ˢ)&,& ˢ !#'"$ '&(ˢ +)$--ˢ
&9"&'(ˢ "#ˢ ,&+",$ ˢ #,ˢ $88&!"ˢ $'?ˢ #'",$!"ˢ %$(&ˢ #,ˢ "#ˢ @&ˢ %$(&ˢ *)ˢ $'?ˢ
#%%++#'&,+ˢ $!" '.ˢ 1'(&,ˢ 1")#, "?ˢ #8ˢ 5$,-$%&'"ˢ ")&ˢ #$'6
(4$'!&6ˢ #,ˢ H,$'"ˢ #8ˢ 9!)&C1&,ˢ --+ˢ #,ˢ #'&?

<ˢ '(ˢ @&ˢ "81,")&,ˢ &'$!"&(ˢ)$"ˢ $--ˢ 5, '" ' .ˢ $'(ˢ "$" #'&,?ˢ $2+6ˢ Z!ˢ "#ˢ
8#,ˢ *) !)ˢ H,$'(ˢ R1, &+ˢ %$?ˢ @&ˢ $1")#, L&(ˢ "#ˢ %$:&ˢ 5,&+&'"%&'"ˢ @&ˢ &9&!1"&(ˢ
+)$--ˢ @&ˢ &9&!1"&(ˢ @?ˢ #'",$!"6ˢ "#ˢ @&ˢ %$(&ˢ $'(ˢ &'"&,&(ˢ '"#ˢ 12#"ˢ @?ˢ #'",$!"6ˢ
+&$-&(ˢ &'(&,+ˢ $'(ˢ 5,#2#+$-+6ˢ "#ˢ @&ˢ (&- 4&,&(ˢ $'(ˢ (&$-"ˢ * ")ˢ $+ˢ +1!)ˢ
H,$'(ˢ R1, &+ˢ %$?ˢ (,&!"

<ˢ '(ˢ @&ˢ "&'$!"&(ˢ)$"ˢ ")&ˢ &!,&"$,?ˢ #8ˢ &$!)ˢ H,$'(ˢ R1,?ˢ DH/D32/6ˢ "#ˢ
+)$--ˢ 2,#4 (&ˢ $'(ˢ :&&2ˢ $ ##:ˢ ˢ *) !)ˢ)&ˢ +)$--ˢ '+&,"ˢ $"ˢ @+",$!"ˢ]DDCˢ 2 O]ˢ
#8ˢ ")&ˢ +&4&,$-ˢ #'",$!"+ˢ *) !)ˢ '#*ˢ $,&ˢ #,ˢ)&,&$8"&,ˢ %$?ˢ @&ˢ &'"&,&(ˢ H #32 # #4ˢ
'"#ˢ @?ˢ +1!)ˢ H,$'(ˢ R1,?6ˢ +&"ˢ '.ˢ #1"ˢ ")&ˢ $%&+ˢ #8ˢ ")&ˢ +&4&,$-ˢ #'",$!"+
#'",$!"#,+6ˢ $'(ˢ ")&ˢ 5-$!&+ˢ *)&'!&ˢ $'(ˢ "#ˢ *) !)ˢ &$!)ˢ #$(ˢ !#'N
",$!"&(ˢ 8#,ˢ -&$(+6ˢ $'(ˢ $"ˢ *)$"ˢ -&+"#'&6ˢ &$, ' .6ˢ #,ˢ '#"&(ˢ 5-$!&ˢ
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/ˢ 3ˢ $--

>ˢ .131/Dˢ (#3/2H3Eˢ Z" H"ˢ /2#Gˢ ,I/ DEˢ O26ˢ D#3D/ˢ #3 ˢ 3 ˢODˢ O2GD!ˢ 2Eˢ "D/D #^ OD. /Dˢ C/ ^ F GDG!ˢ O6ˢ ED23DGˢ D#^ GD/Eˢ 2#Gˢ +/ C E27E

U T ; B ʻ ʻ (2k Q

$--ʻ +1!)ʻ #'",$!"+ʻ +#ʻ &$" ,&(ʻ 'ʻ +1!)ʻ ##:ʻ +)$--ʻ)&ʻ '1%@&,&(ʻ $, (ʻ &4&,?ʻ +1!)ʻ ##:ʻ +)$--ʻ)$4&ʻ $'ʻ $-2)$@&" !$-ʻ '(&96ʻ ,&8&,, '.ʻ "#ʻ ")&ʻ 1%@&,ʻ #8ʻ &$!)ʻ #'",$!"

I/FD6 /E3ʻ O2]Dʻ B2CEʻ .ʻ,3 2GEʻ H #3/2H3DGʻ . /

< ʻ '(ʻ @&ʻ "ʻ &'$!"&(ʻ)$""")&ʻ #1'"?ʻ 1,4&?#,ʻ +)$--ʻ !$1+&ʻ $'ʻ $!!1,$"&ʻ $2ʻ "#ʻ @&ʻ %$(&6ʻ 12#'ʻ $ʻ !$-&ʻ #8ʻ #,"?ʻ 5&,!)&+ʻ "#ʻ $"ʻ '!)6ʻ #8ʻ &4&,?ʻ #$(ʻ #,ʻ 5$,"ʻ ")&,&#8ʻ 8#,ʻ ")&ʻ &2$,+ʻ #8ʻ *) !)ʻ $'?ʻ #'",$!"ʻ +)$--ʻ @&ʻ %$(&ʻ $8"#"ʻ ")&ʻ 2$++ '.ʻ #8ʻ") +ʻ !"66ʻ *) !)ʻ $2ʻ +)$--ʻ %$,:ʻ ")&ʻ 2,&! +&ʻ 2#"ʻ *)&,&ʻ +1!)ʻ #'",$!"ʻ !#%%&'!&+6ʻ $'(ʻ &$!)ʻ #*'-$'(ʻ #,ʻ #")&"ʻ 3&'#% '$"#'ʻ #8ʻ $'(ʻ"),#1.)ʻ *) !)ʻ +1!)ʻ #$(ʻ #,ʻ ")&ʻ 5$,"ʻ ")&,&#8ʻ !#'",$!"&(ʻ 8#,ʻ 2$++&+6ʻ $'(ʻ *)&,&ʻ ")&ʻ +$%&ʻ &'(+ʻ $'(ʻ ")&ʻ '&ʻ #8ʻ +1!)ʻ #'",$!"ʻ +)$--ʻ &ʻ 'ʻ $ʻ (88&,&'"ʻ #-#1,ʻ 8,#%ʻ ")&ʻ ,&+"ʻ #8ʻ ")&ʻ $26ʻ $'(ʻ ")&ʻ #1+&+ʻ $'(ʻ $%&+ʻ ʻ#8ʻ ")&ʻ #!!1N 2? '.ʻ &'$'"#'ʻ ")&ʻ %%&($"&ʻ (&+ʻ #8ʻ +1!)ʻ #$(6ʻ $'(ʻ ")&ʻ , (.&+6ʻ ,!)&+6ʻ #,ʻ 5 2&+ʻ #4&,ʻ "8&$,'+ʻ #8ʻ E $"&,ʻ !,#++ '.ʻ +1!)ʻ #$(6ʻ +)$--ʻ @&ʻ %$,:&(ʻ ")&,&#'ʻ $'(ʻ ")&ʻ 1,4&?#,ʻ %$: '.ʻ +1!)ʻ 1,4&?ʻ $'(ʻ $2ʻ +)$--ʻ +.'ʻ) +ʻ $%&ʻ $"ʻ ")&ʻ ##"ʻ #8ʻ +1!)ʻ $26ʻ $'(ʻ +)$--ʻ !&,"8?ʻ ")&ʻ !!1,$!?ʻ #8ʻ +1!)ʻ 1,4, ?ʻ $'(ʻ $2ʻ @&8#,&ʻ +#%&ʻ R1+" !&6ʻ #8ʻ ")&ʻ 5&$!&ʻ ,&+ ('.ʻ '&$,ʻ "#ʻ ")&ʻ +$%&ʻ #$(6ʻ *)#ʻ +)$--ʻ $""&+"ʻ ")&ʻ +$%&ʻ @?ʻ) +ʻ .'$"1,&ʻ $'(ʻ $--ʻ +1!)ʻ $2+ʻ +)$--ʻ @&ʻ -#(.&(ʻ *")ʻ ")&ʻ &!,&"$,?ʻ "#ʻ "- &ʻ H,$'(ʻ R1,?6ʻ $'(ʻ +)$--ʻ @&ʻ '1%@&,&(ʻ @?ʻ) %ʻ *")ʻ ")&ʻ -:&ʻ 1%@&,ʻ $+ʻ ")&ʻ #'",$!"ʻ %$?ʻ @&ʻ (+"'.1 +)&(ʻ @?ʻ 'ʻ ")&ʻ ##:ʻ #8ʻ @+",$!"+ʻ)&,& 'B@&8#,&ʻ (,&!"&(ʻ "#ʻ @&ʻ 2,&2$,&(6ʻ $'(ʻ +)$--ʻ @&ʻ 2,&+& *&(ʻ @?ʻ) %6ʻ $'(ʻ @&ʻ 2,#(1!&(ʻ *)&'ʻ ,&C1 ,&(ʻ @?ʻ ")&ʻ R1+" !&+ʻ $"ʻ ")&,ʻ 2&! $-ʻ &++ #'+6ʻ #,ʻ @?ʻ ")&ʻ H,$'(ʻ R1,?ʻ

(4$'!&+ʻ %$?ʻ @&ʻ %$(&ʻ "#ʻ !#'B HD/32 # $+&+

ʻ '(ʻ @&ʻ "ʻ &'$!"&(ʻ)$"ʻ 'ʻ $+&+ʻ *)&,&ʻ ")&ʻ #+"ʻ #8ʻ &9&!1" '.ʻ $'?ʻ 21@- !ʻ E#,:ʻ +)$--ʻ &9!&&(ʻ *&'"?ʻ 5#1'(+ʻ "ʻ +)$--ʻ @&ʻ -$*81-ʻ 8#,ʻ ")&ʻ H,$'(ʻ R1,?6ʻ $"ʻ ")&ʻ , '&ʻ #8ʻ 2,&+&'" '.ʻ 8#,ʻ ")&ʻ E#,:6ʻ "#ʻ $1")#, L&ʻ ")&ʻ ,&$+1,&,ʻ #8ʻ ")&ʻ #1'"?6ʻ 8,#%ʻ $'(ʻ #1"ʻ #8ʻ $'?ʻ 1'(+ʻ 'ʻ) +ʻ $'(+ʻ $22- !$@-&ʻ "#ʻ +1!)ʻ 51,2#+&6ʻ "#ʻ $(4$'!&ʻ "#ʻ ")&ʻ #'N ",$!"#,ʻ '&ʻ $-8ʻ #8ʻ ")&ʻ #+"ʻ #8ʻ ")&ʻ E #,: ʻ 2,#4 (&(ʻ")$"ʻ "ʻ +)$--ʻ @&ʻ !&,"8 &(ʻ @?ʻ ")&ʻ 2,#2&,ʻ 1,4&?#,ʻ ")$"ʻ %#,&ʻ ")$'ʻ '&ʻ $-8ʻ #8ʻ ")&ʻ #+"ʻ #8ʻ +1!)ʻ E#,:ʻ)$+ʻ @&&'ʻ 8$,-?ʻ $'(ʻ)#'&+"-?ʻ &92&'(&(ʻ 12#'ʻ "ʻ !#'8#,%$@-?ʻ "#ʻ ")&ʻ #'",$!"6ʻ $'(ʻ ")$"ʻ *")ʻ 'ʻ ")&ʻ 5&, #(ʻ)&,&'N @&8#,&ʻ - % "&(ʻ 8#,ʻ -#+ '.ʻ 22- !$"#'+ʻ 8#,ʻ 5,&+&'"%&'"+ʻ (1&ʻ #" !&ʻ)$+ʻ @&&'ʻ -#(.&(ʻ*")ʻ ")&ʻ &!,&"$,?ʻ #8ʻ ")&ʻ H,$'(ʻ R1,?ʻ #8ʻ ")&ʻ '"&'N "#'ʻ #8ʻ +1!)ʻ #'",$!"#,ʻ "#ʻ $22-?ʻ 8#,ʻ +1!)ʻ (4$'!&6ʻ $'(ʻ ")$"ʻ+1!)ʻ 22- !$"#'ʻ +)$--ʻ)$4&ʻ @&&'ʻ $22,#4&(ʻ #8ʻ @?ʻ ")&ʻ R1+" !&ʻ #,ʻ R1+" !&+ʻ $'(ʻ &++ʻ 5$?&,+ʻ $"ʻ ")&ʻ 2&! $-ʻ &++ #'+ʻ "#ʻ @&ʻ)#-(&'ʻ 8#,ʻ ")&ʻ 51,N 2#+&+ʻ #8ʻ ,&!& 4 '.ʻ 22- !$"#'+ʻ 1'(&,ʻ") +ʻ !"

% ",$!"#,+ʻ - $@-&ʻ "#ʻ @& @&8#,&ʻ -1+Bʻ 3 HDEʻ 23ʻ+D336ʻ &++ #'+ʻ 8#,ʻ @24DE

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5&,8#,%$'!& #8 +1!) #'",$!" $'(+1!) #'",$!"#, +)$-- -#(.& * ") '/2#G, I/6
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-% "&(8#, ")& #(.%&'" #8 #" !&+ #8 22- !$" #'+ 8#, 5,&+&'"B
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")& ##: #8 @+",$!"+ *) !) +1!) &!,&"$,?)$+ @&&')&,& 'B@&8#,&
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#8 ")& #(.%&'" #8 ")& +$%& $'(+1!) &!,&"$,? +)$-- -$? $-- +1!) DH/D32/6 3
#" !&+ $'(&," 8 !$"&+6 * ") $' @+",$!" ")&,&#8 $'('(&9 ")&,&"#7 O_$:& ! &B
@&8#,& ")& R1+" !& #, R1+" !&+ $'(&++ 5$?&,+ $++&%@-&($" ")& 2&! $
&++ #'+ "# @&)#-(&' 1'(&, ")& 5,#4 + #'+ #8 ") + !" 8#, ")& #''?
#, 5#," #' ")&,&#86 +# ")$" &$!) $+& 22- !$" #' 8#, 5$?%&'" %$? OD. /D , IE
@& %$(& ' ")& $,#'? #, $-8 $,#'?6 #, +#%& #'& #8 ")& $,#' &+ #, 3 HDE 23
$-8 $,#' &+6 ' *) !) +1!) E#,: +)$--)$4& @&&' &9&!1"&($'(")&
R1+" !& #, R1+" !&+ $'(&++ 5$?&,+ $" +1!) &++ #'+ +)$-- &9$% '& '"# DEE. #E
$V +1!) 22- !$" #'+ 8#, 5$?%&'" #' ")& 5$," #8 +1!) #'",$!"#,+ 77 E I H" CC7 H23 #E
$'('+2&!" ")& #" !&+ ")&,&#8 $'(")& &," 8 !$"&+ $8#,&+$ (6 $'(3 OD O 2GD
&9$% '& ")& 1,4&?#, #, 1,4&?#,+ $'($-- #")&, 5&,+#'+B *)#% ")&? $" CDH 27
") ': '&!&++$,? "# &9$% '& 8#, ")& 51,2#+& #8 $+!&,"$ '.")& (1& &++ #'7
9&!1" #' #8 ")& E#,: #, $""&, !#'",$!"&(8#,6 $'(+)$-- ")&,& ' 2CC/ FDG %3
)$4& $'(&9&,! +& $-- +1!) 5#*&,+ $'(1")#, "&+ $+ ' ")& $+& @& 277 ZDG
#8 22- !$" #'+ 8#, 5,&+&'"%&'"+ 1'(&, ") + !"6 $'(' - :& /G E277 ZDG
$''&, (&"&,% '& $'((&! (& 12#' $-- +1!) 22- !$" #'+ 8#, 5$?B @? /2#G
%&'" @? $>#, "? #8 <#"&+ $'(")&)$,%$' $" +1!) &++ #'+ +)$--
#' &4&,? 22- !$" #' *) !) %$? @& $22,#4&('(#,+& ")& E#,(* %H/D3 #<
\ --#*&(6^ $'(#' &4&,? 22- !$" #' *) !) +)$-- '#" @& $22,#4&(
)& +)$-- '(#,+& ")& E#,(\ 3 +$--#*&(^ $'(")& &$+#' #8 +1!)
3 +$--#*$'!&6 $'($ #"& #8 #, &8&,&'!& "# ")& 5$," !1-$,+6 #8 ")&
9&!1" #' #8 ")& E#,: *) !) %$?)$4& !$1+&(+1!) 3 +$--#*$'!&
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@&-#'. '.6 +)$-- @& (&)4&,&("# ")& &!,&"$,? #8 ")& H,$'(R1,?6 "#
@& -$ (@&8#,& ")&%6 $" ")& '&9" &'+1 '. ++ L&+ $'(+1!) H,$'(
R1,? $'(")& #1," +)$-- "$:& +1!) 22- !$" #' '"# !#'+ (&,$" #'6
$'($--#* #, (+$--#* ")& +$%& $!!#,('. "# ")& , 3 +!,&" #'6 ' - :&
$''&, $+ ")& 88 ($4 "+ #8 4&,+&&,+)$4& @&&')&,&"#8#,& $--#*&(
#, (+$--#*&(] 5,#4 (&($-*$?+6 ")$" " +)$-- '#" @& -$*81- 8#, +1!)
H,$'(R1,? #, #1," "# $--#* $'? 22)!$" #' *) !) +)$-- '#")$4&
@&&' $22,#4&(#8 @? ")& R1+" !& #, R1+" !&+ $'(&++ 5$?&,+ $" +1!)
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5$?%&'" *)# +)$-- '#")$4& . 4&' +1!) #" !& $'(%$(& +1!)
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22- !$" #'6 "# @& $22,#4&($'($--#*&($+ $8#,&+$ ($'?") '. "
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5&,+#' 2$? '. H,$'(R1,? &++ "# ",$4&,+&6 %$' '&, *) !) 5,&B
U7+'"%&'"+)$4& @&&')&,&"#8#,& ",$4&,+&(6 $" ++ L&+ $'?
5,&+&'"%&'"+ %$(& 1'(&, ") + !"6 $'("# ",$4&,+& - :& $''&,
")& 22- !$" #' #8 $'? +1!) #'",$!"#, 1'(&, ") + !" 8#, 5$?%&'"6
#' ")& H,#1'(#8 +1!) #'",$!"#, '#")$4 '. !#%2- &(* ") ")&
&,%+ #8) + .,&&%&'" #, * ") ")& 5,#4 + #'+#8") + !"6 #,#' ")&
H,#1'(#8 ,,&.1-$, "? 2 ")& #" !& #8 22- !$" #' $'(")& #1,"
$" &$!) ++ L&+ +)&,&@? $1")#, L&($'(,&C1 ,&("# ",? ")& ,1") #8
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H,#1'(8#, ",$4&,+ '. +1!) 2,&+&'"%&'" #, ")& 22- !$" #' #8 +1!)
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8 #%6 $'(#1" #8 ")& #1'"? #' &+) + $'(+6 $'(")& +$%& 2,&N
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,&$+1,&, #8 $'? #1'"? "# 2$? $'? #'&? *) !) %$? @& $22- &(
8#, @? $'? #'",$!"#, #")&, 5&,+#'6 ")& 22- !$" #' *)&,&&@)$+
@&&' ",$4&,+&(6 1'-&++ +1!) ,$4&,+& +)$-- @& * ")(,$*'6 #, R1(.%&'"
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2CC7 H2O7D
3 4D#D/27
+I/C EDE .
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< '(@& " &'$!"&( )$" $'? $-$'!&6 ,,&$,+ #8 #, 1,N
2-1+ #' ")& $-$,? #8 $'? #1'"? 88 !&,6 $'($V #")&, +1!) - :&
1 2-1+ $'($-$'!&+ #8 #'&? ,$ +&(@? 1")#, "? #8 ") + !"6
#,*) !) %$? $'?)#7<$, +& ")& $'(+ #8 $'? #1'"? ,&$+1,&,6
+)$-- @& $22- &($'($22- !$@-& "# (&8,$? ")& 92&'!&+ #8 $'? #")&,
21@- ! E#,:+6 #, "# 2$? $'? - :& $-$, &+6 #, "# (&8,$? $'? #")&,
#1'"?)$,.& #, E#,:6 +1!) $''&, $+ $'? H,$'(R1,? %$?
") ':8 "# (,&!"$'($22# '" 5,#4 (&($-*$?+6 ")$" +1!) 1%6 +)$--
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+)$-- @& %$(& $" 2&! $- &++ #'+ +)$-- . 4& #" !& E, " '. #8
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22- !$" #' 8#, +1!) 5,&+&'"%&' + "# @& "$:&' '"# !#'+ (&,$" #'6
$'(")& +%$& +)$-- @& ",$4&,+&(#'-? $" ")& ++ L&+ $" *) !) ")&
5,&+&'"%&' +)$-- @& %$(& $'("" +)$-- @& -$*81- 8#, $'? !!12 &,
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")&ˢ ,#*'ˢ ##:ˢ #8ˢ ")&ˢ 5,&+&''%&''ᶳ $'(ˢ ,$4&,+&6ˢ * ")#1"ᶳ %$: '.ˢ
12ˢ $'?ˢ &!#,(ˢ $'(ˢ")&ˢ R1,?ˢ *) !)ˢ +)$--ˢ ",?ˢ +1!)ˢ ,$4&,+&ˢ +)$--ˢ @&ˢ
K+*#,'ˢ",1&ˢ <&,(!"ᶳ "#ˢ. 4&ˢ *)&")&,ˢ $'?ˢ$'(ˢ *)$"ᶳ 3$%$.&+ˢ * --ˢ #!!1,ˢ
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+#ˢ 8#1'(ˢ @&'.ˢ 2,&+&'"&(ˢ 8#,ˢ ")&ˢ V+&ˢ #8ˢ +1!)ˢ ,$4&,+&,6ˢ #,ˢ (&2#+"&(ˢ
8#,ˢ) +ˢ #,ˢ ")&,ˢ V+&ˢ *")ˢ ")&ˢ ,&$+1,&,ˢ #8ˢ ")&ˢ #1''?6ˢ ᶳ +)$--ˢ @&ˢ
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8#,ˢ ")&ˢ H,$'(ˢ R1,?ˢ "#ˢ 2,&+&''6ˢ $"ᶳ ")&,ˢ 3 +!,&" #'6ˢ +1!)ˢ 1%ˢ #,ˢ
1%+ˢ #8ˢ #'&?ˢ +#ˢ 8#1'(ˢ 8#,ˢ 3$%$.&+6ˢ "#ˢ @&ˢ ,$ +&(ˢ #'ˢ ")&ˢ #1''?ˢ
#,ˢ #'ˢ ")&ˢ $,#'?ˢ #,ˢ $-8ˢ $,#'?ˢ ,&+2&!" 4&-?ˢ 'ˢ *) !)ˢ ")&ˢ ,$4&,+&,ˢ
+)$--ˢ)$4&ˢ %$(&ˢ ᶳ $22&$,ˢ ")$"ᶳ)&ˢ #,ˢ +)&ˢ +1+"$ '&(ˢ ")&ˢ 3$%$.&+6ˢ
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<ˢ '(ˢ @&ˢ ᶳ&'$!"&(ˢ)$"ᶳ $'?ˢ *#ˢ R1+" !&+ˢ #8ˢ ")&ˢ 5&$!&ˢ 'ˢ ,IE3 HDEˢ 026ˢ
5&""?ˢ &++ #'+ˢ $++&%@-&(ˢ 'ˢ $'?ˢ #1''?ˢ %$?6ˢ 1'(&,ˢ ")&,ˢ $'(+ˢ $'(ˢ
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,&2$, '.ˢ $'?ˢ ,(.&ˢ #,ˢ $'?ˢ 21@-!ˢ #$(ˢ *) !)ˢ %$?ˢ @&ˢ +1((&'-?ˢ *2024Dˢ .ˢ
($%$.&(6ˢ 2,#4 (&(ˢ ᶳ +)$--ˢ $22&$,6ˢ 12@'ˢ ")&ˢ < &*'ˢ #8ˢ #'&ˢ #,ˢ @#")ˢ #8ˢ = 2GEˢ
")&%6ˢ #,ˢ ")$"ᶳ #8ˢ ")&ˢ #1''?ˢ 1,4&?#,6ˢ ")$"ᶳ ")&ˢ &2$,+ˢ #8ˢ +1!)ˢ , (.&ˢ
#,ˢ #$(ˢ !$''#"ᶳ @&ˢ (&-$?&(ˢ"--ˢ ")&ˢ '&9"ᶳ ++ L&+ˢ * ")#1"ᶳ 5,&>1(!&ˢ "#ˢ
")&ˢ 51@- !ˢ $'(ˢ ᶳ +)$--ˢ @&ˢ -$*81-ˢ 8#,ˢ +1!)ˢ R1+" !&+ˢ "#ˢ $22# ''ᶳ $ˢ
2,#2&,ˢ 5&,+#'ˢ #,ˢ 5&,+#''+6"#ˢ ,&2$,ˢ ")&ˢ +$%&ˢ $'(ˢ &4&,?ˢ H,$'(ˢ R1,?ˢ
#8ˢ $'?ˢ+1!)ˢ #1''?ˢ +ˢ)&,&@?ˢ &%2#*&,&(ˢ "#ˢ 2,&+&''ᶳ $"ᶳ ")&ˢ '&9"ᶳ ++ L&+ˢ
")&ˢ 1%ˢ +#ˢ &92&'(&(ˢ 'ˢ ,&2$,'.ˢ $'?ˢ +1!)ˢ , (.&ˢ #,ˢ #$(ˢ *) !)ˢ
+ˢ - $@-&ˢ "#ˢ @&ˢ ,&2$,&(ˢ @?ˢ ")&ˢ #1''?ˢ $"ᶳ -$,.&6ˢ "#ˢ @&ˢ -&4 &(ˢ #'ˢ +1!)ˢ
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#$(ˢ 12#'ˢ ")&ˢ $,#'?ˢ #,ˢ $-8ˢ $,#'?6ˢ #,ˢ #'ˢ ")&ˢ #1''?ˢ #8ˢ ")&ˢ "?ˢ
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-#!$-' 3 +2&'+$, &+6' $+' *&--' $+' $--' #' &+' +#' ,&!& 4&(' 8,#%' 2, 4$"&' 1@,'
+!, 2" #'' #,' 3#'$" #'' + '!&' ")&' 3$"&' #8' ")&' -$+'' 5,&+&'"%&''' 8#,' ")&,
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V+&6' +)$-' @&' -$ (' @&8#,&' ")&' R1+" !&' #,' R1+" !&+' $'(' &++' 5$?&,+' $"' ")&' 2&! $-' &++ #'+' &'+1 '.' ")&' 3 +@1,+&%&'" ")&,&#8' $'(' " +)$-' '#" @&' -$*81-' "#' %$:&' $'?' 81,")&,' 5,&+&'"%&'" '' $ (' #8' 1!)' 3 +2&'N +$,?' 1'-&++' +1!)' !!#1'" +)$-' @&' $--#*&(' @?' ")&' R1+" !&+' $" +1!)' &++ #'+' $'('$-' +1!)' !!#1'"+' +)$-' $-+#' @&' -$ (' @&8#,&' ")&' H,$'(' R1,?' $" &$!)' ++ L&+] 5,#4 (&('$-*$?+6' ")$" *)&'' $'?' &4&,' #+2 "$-' +)$-' @&' $""$!)&(' "#' $'?' 3 +2&'+$,?6' ")&' ,&$+1,&,' #8' ")&' +$%&' +)$-' +&2$,$"&' ")&' !!#1'"+' #8' ")&' &!& 2"+' $'(' 92&'("1,&' #8' &$!)' +1!)' &4&,' #+2 "$-' $'(' 3 +2&'+$,?6' $'(' ")$" ")&' 22- !$" #'' 8#,' 5,&+&'" %&'"+' 8#,' &$!)' +)$-' @&' +&2$,$"&' $'(' (+" '!"

< ' '(' @&' " &'$!"&(6')$" " +)$-' '#" @&' -$*81-' 8#,' $2?' +/DED#3 OD#3 H,$'(' R1,?' "#' 2,&+&'" $'?' 1%' "#' @&' 2$ (' "#' ")&' 1,.&#'' #8' $'?' 8#,' 272/6' .' '8 ,%$,?' 1'-&++6' "#.&")&,' *")' $'' 22- !$" #'' ")&,&8#,6' $' &," 8 !$"&6' #. 02/' + .'&('@?' ")&' H#4&,'#,+' #8' +1!)' '8 ,%$,?' #,' #+2 "$-6' #,' @?' 4&' #8' ")&%' $" ")&' -&$+"6' +)$-' @&' -$ (' @&8#,&' ")&' 2&! $-' &++ #'+' "#B 7')#-(&'' 1'(&,' ") +' !" 8#,' ")&' 51,2#+&' #8' !#'+ (&, '.' 22- !$" #'+' 8#,' 5,&N +&'"%&'"+6' *) !)' &," 8 !$"&' +)$-' +"$"&' ")$" ")&' 1,.&#'' 8#,' *)#%' +1!)' $(("#'$-' $-$,?' +' ,&C1&+"&(' "#' @&' 2,&+&'"&(')$")' (2-?$'(' 8$ ")81--?' &9&!1"&(') +' 31"?' $+' 1,.&#'' #8' +1!)' '8 ,%$,?' #,' #+2 "$-' (1, '.' ")&' 2,&!&('.' &$,6' '#,6' *)&,&' +1!)' 1,.&#'' +)$-')$4&' @&&'' $22#' '"&(' +1@+&C1&'" "#' ")&' 2$++ '.' #8' ") +' !"6' 1'-&++' $",1&' #2?6' !&," 8 &(' 1'(&,' ")&' $'(' #8' ")&' ,&$+1,&,' #8' +1!)' '8 ,%$,?' #,' #+N 2 "$-6' #8' ")&' &""&,+' &+" %#' $-' 8,#%' ")&' #--&.&' #8' 1,.&#'+' '' @?' $*' ,&C1 ,&(' "#' @&' #@"$ '&(' @?' &4&,?' +1!)' 1,.&#'6' +)$-' @&' -$ (' @&8#,&' +1!)' 2&! $-' &++ #'+6' '#,' 1'-&++' +1!)' 1,.&#'' +)$-6' 8' ,&C1 ,&(6' .4&') +' ""&' ($'!&' $'(' 2,#8&++ #'$-' ++ +"$'!&' * ")#1" $'?' #")&,' #,' 81,")&,' &&' #,' &*$,(' "#' ")&' 5, +#'&,+' #8' ")&' +$%&' +)$-')$4&' @&&'' $22#' '"&(' 1,.&#'6' 8' +1!)' H$#-' +' +"1$"&' * ")' '' 4&' -&+' #8' +1!)' '8 ,%$,?

< ' '(' *)&,&$+' @?' $!&,"$ '' !" 2$++&(' '' ")&' 5$,-$%&'" @23D/. /G' #8' ' '' ")&'),?B' '")' &$,' #8' +' -$"&' $>&+"?' D '.' (I#36' ' ")&'),(' " *$+6' $%#' .+" #")&,' ") '.+6' &'$!"&(6' ")$" ")&' > EC 327!' 21@- !' '8 ,%$,?' #,' #+2 "$-' #8' ")&' #1'"?' #8' / ' +)#1-(' @&' &,&!"&(' #,' &+"$@-+)&(' '' ")&' #*'' #8' O * ' 5 * ' '' ")&' +$(' #1'"?6' $'(' !&,"$ '' 5&,+#'+' ")&,&'' '$%&(6' $'(' ")&,' 1!!&++#,+' 8#,' &4&,6' *&,&' !#'+" "1"&(' '"#' $' #(?' 5#-' " !' $'(' #,2#,$"&6' 1'(&,' ")&' $%&' #8' \')&' H#4&,'#,+' #8' ")&' #1'"?' #8' / ' #+2 "$-6^' @1"' '#' +1!)' '8 ,%$,?' #,' #+2 "$-')$")' @&&'' + '!&' &,&!"&(' '"' ")&,&8#,&' &'$!"&(6')$" +#' %1!)' #8' ")&' +$ (' !" #8' ")&'),?B' '")' &$,' #8' ")&' &.'' #8' D '.' ")&'),(' ,&!" +' ")$" ")&' #1'"?' #+2 "$-' #,' '8 ,%$,?' #8' ")&' +$(' #1'"?' #8' / ' +)#1-(' @&' &,&!"&(' ' ")&' +$(' #*'' #8' O * ' 5 * ' @&' $'(' ")&' +$%&' +)&,&@?' ,&2&$-&(' $'(' " +)$-' @&' -$*81-' "#' &,&!" ")&' '8 ,%$,?' #,' #+2 "$-' #8' ")&' #1'"?' #8' / ' $'?' !#'4&' &'"$'(' +1 "$@-&' 5-$!&' *") '' ")&' +$(' #1'"?' #,' #1'"?' #8' ")&' +$(' ?' #8' / ,

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'(@& " &'$!"&( )$" $-- $+&+ #8 %$- ! #1+-? $'(*$'"#'-?@1, '.6 (&%#- +) '.6 #, 21-- '. (#* $'? #1+&6 1")#1+&6 $..$,(6 #, #")&, 1-('.6 #, #8 ")& #@@&,?6 @1, '.6 +': '.6 (&+",#? '.6 #, #")&,* +& '>1, '. #8 $'? #%6 1,86 &,!)$'(L&6 "#,& #$"6 $,.&6 <&++&-6 #, #")&, 5,#2&,"?6 #, #8 %$- ! #1+-?)#1.) '.6 !1" '.6 %$% '.6 #, '>1, '. #8 $'? $""-&6 " +)$-- $'(%$? @& -$*81- 8#, $'? 5&,+#' #, 5&,+#'+ '>1,&(@? +1!) 88&'!& "# &9) @ " $'((&- 4&, "# ")& R1(.& #, R1(.&+ #8 ++ L& $" ")& '&9" ++ L&+ "# @&)&-(8#, ")& #1'"?A #1'"? #8 $ "? #, #*' *)&,& $'? +1!) 88&'!& %$?)$4& @&&' !#%% ""&(6 $ 5&""#' 2,$? '. #%2&'+$" #' 8#, ")& #++ #, 3$%$.& #!!$+ #'&(@? +1!) 88&'!&6 $'(+"$" '. ")& %& $'(5-$!& *)&' $'(*)&,& +1!) '>1,? *$+ (#'&6 ")& 2$," !1-$, 5,#2&,"? "$:&' $*$?6 '>1,&(6 #, -#+"6 $'(")& %#1' #8 ")& 3$%$.&+ ")&,&@? +1+"$ '&(6 $'(@? *)$" 1%@&, #8 5&,+#'+6 $'(*)#% @? $%& $'(3&+!, 2"#'6 +1!) '>1,? *$+ (#'&6 8 +1!) 88&'(&, #, 88&'(&,+ +)$-- @& :'#*'6 $'(8 '#"6 ")&' +"$" '. +1!) 2$," !1-$, 3&+!, 2"#'+ #8 &$!) +1!) 8 &'(&, $+ %$? @& :'#* $'(")& +$($""&,6 +)$)6 ")&,&12#' @& &9$% '&(@? ")& H,$'(R1,?6 #' ")& 5$,"? +# 2&""#' .6 $'(+1!) #")&, 4(&'!& $+ !$' @& 2,#(1!&("#1!) '. ")& $!"+ +"$"&(+1!) 5&""#' $'(")& H,$'(R1,? #8 +1!) #1'"?6 #1'"? #8 $ "? #, #*'6 $" ")& +$%& #, '&9" ++ L&+ #, 5,&+&'" '. &,%6 +)$-- $'(")&? $,&)&,&@? ,&C1 ,&("# 2,&+&'"6 "# @& ,$ +&(#8 ")& #1'"?6 #, $'? $,#'? #, $-8 $,#'?6 ")&,&#86 +1!) 1% #8 #'&? $+ +)$-- $22&$, "# @& ")& %#1' ")& 5$,"? 2&" #' '. #1.)" "# ,&!& 4& @? *$? #8 #%2&'+$" #' 8#, +1!) #++ #, 3$%$.&] 5,#4 (&($-*$?+6 ")$" #" !& E, '. #8 &4&"? +1!) 5&" #' +)$-- @& -#(.&(* ")& &!,&"$,? #8 ")& H,$'(R1,? %& $+ 22- N !$" #'+ 8#, 5,&+&'"%&'"+ $,&)&,& 'B@&8#,& (,&!"&("# @& -#(.&($'($ #2? #8 &4&,? +1!) 5&" #' +)$-- @& -$(@&8#,& ")& 2&! $- &+N +#'+ "# @&)&-(1'(&, ") + ! ")& $,#'? #, 5-$!& *)&,& #, #1+ '>1,?%$?)$4& #!!1,,&(6 $'(")& R1+" !& #, R1+" !&+ $'(&++ 5$?&,+ $++&%@-&($" +1!) 2&! $- &++ #'+ +)$-- $'(%$? 'C1 ,& "# ")& $""&, #8 +1!) 5&" N "#'6 $'(")&)$,%$" +)$-- (#,+& ")&, 2 #' ")&,&12#'6 $'(")& &!,&"$,? #8 ")& H,$'(R1,? +)$-- (&- 4&, &4&,? +1!) #2? #8 5&" #' +# (#,+&("# ")& R1(.& #8 ++ L& "# *)#% ")& 5&" #' %$? $22-? $'((" +)$-- '#8 @& -$*81- 8#, $'? H,$'(R1,? "# &9$% '& "# ")& $""&,+ ")&,& +)$-- $22&$, "# ")&%6 ")$" ")& +$%& +)$--)$4& @&&' -$(@&8#,& +1!) 2&! $- &++ #'+ %$''&,)&,& 'B

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")& <&,.& #,' * ") ' ")& 3 +"$'!& #8 *# -&+ #8 ")& #1'($,? #8 CD#E23 #. /
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+1!)' 5&" "#' "# ")& R1(.& #,' R1(.&+ #8 ++ L& $" ")& '&9" ++ L&+ #51/6 H 0^
"# @&)#-(&' 8#,' & ")&,' #,' $'? #8 +1!)' #1'" &+6 $'(' " +)$-- @& -$*81- 0 33DG #D2/
8#,' +1!)' R1(.& #,' R1(.&+ #8 ++ L& "# (,&!" ")& H,$'(' R1,? #8 +1!)' I#G2/6
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%#1'" #8 +1!)' #%2&'+$" #' @&"*&&' +1!)' '& .)@#1, '.' #1'" &+ '
+1!)' 5,#2#," #'+ $+")&?+)$--") '.'8 "6 $'(' !&," 8?")& +$%& $!!#,('.-?'
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&$!)' #8 ")&%' $,&)&,&@? ,&C1 ,&(6 #' ")& 5,#(1!" #' #8 ")& &," N
8 !$"& #8 +1!)' R1(.& #,' R1(.&+ (&!-$, '.' ")& %#1'" #8 #%2&'N
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2,&+&'" +1!)' 5,#2#," #'+ #8 ")& %#1'" #8 +1!)' #%2&""+$" #'
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8 "6)& #,' ")&? +)$-- (,&!" $ R%?' "# @& 8#,") * ")' %2$''&--&(' "# ",?' ")& CD3 3 #'
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$'? #%2&'+$" #'6 "- & 1% +# $*$,(&(' +)$-- @& 2,&+&'"&(' @? ")&
H,$'(' R1,?6 $+ ")& #%2&'+$" #' "# @& 2$ (6 #' ##" #8 +1!)'
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' 5,#4 (&(' $-*$?+6 $'(' @& " &'$!"&(')$" 8 $'? 5,#2&,"? .'+/ CD/36
8#,' *) !)' $'? 5&,+#' +)$--)$4& ,&!&4&(' $" +8$!" #' @? +1!)' 5,&+&'"B
%&'" $+ $8#,&+$ (' +)$-- @& $8"&,*$,(+ (+!#4&,&(' #,' #@"$ '&(6 ")& &$+1,&,'
,&$+1,&,' #,' ,&$+1,&,+ 8#,' ")& %& @& '.' #8") & #1'"? 8,#%6 *) !)' D#3 37DG 3
+1!)' $" +8$!" #')$+ @&&' ,&!& 4&(' %$?)$4& $'(' ,&!#4&,' +1!)' "8#,' ")&
5,#2&,"?6 $'(' ")& +$%& +)&,&@? (&!-$,&(' $'(' &'$!"&(' "# @&-#' '. D#D. 3
1'"# $'(' @& 4&+"&(' ') % #,' ")&%' 8#,' ")& V+& #8 +1!)' #1'"? #,' 3"D (I#36
#1'" &+6 ' 2,#2#," #' "# ")& 1%+ ,&+2&!" 4&-? 2,&+&'"&(' $'(' ,$ +&(
#"8 ")& +$%&6 $'(' +1!)' ,&$+1,&,' %$? %$ '"$ ') + #* ' $ "& $'?
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+1!)' 5,#2&,"?6 #,' #8 3$%$.&+ 8#,' ")& +$%&6 *) !)' ")& 5&,+#' ,#@@&(
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)ʻ H3 #ʻ3ʻ OD O/ I4"3ʻ Z"D/D (O ʻ CD#E23 # O32 #DG I#GD/ʻ3" E H3N O I3ʻ Z"D/D # 3ʻ O32 #DG!ʻ 2/36ʻ #5I/DG 3ʻ 32FD 2?7 3"D/ʻ 7D427 3D O DG DE

<ʻ '(ʻ @&ʻ "ʻ &'$!"&(6ʻ)$"ʻ '#ʻ !"#"ʻ#,ʻ 1ʻ $.$ '+"ʻ $,"?ʻ)&8ʻ #,ʻ #")&,ʻ $. +",$"&6ʻ #,ʻ $'?ʻ ')$@ "$'"ʻ #,ʻ ')$@ "$'"+ʻ #8ʻ $'?ʻ 5$, +)6ʻ +)$--ʻ @&ʻ @,#1.)"ʻ #,ʻ 2,#+&!1"&(ʻ @?ʻ ")&ʻ 5$,"?ʻ +#ʻ 2&" "#' '.ʻ $+ʻ $8#,&+$ (ʻ 8#,ʻ ")&ʻ &!#4&,?ʻ #8ʻ $'?ʻ $"+8$!"#"ʻ #,ʻ 3$%$.&+ʻ +1+"$ '&(ʻ @?ʻ ,&$+#"ʻ #8ʻ $'?ʻ 88&'!&ʻ 8#,ʻ *) !)ʻ #%2&'+$"#"ʻ %$?ʻ)$4&ʻ @&&'ʻ #@"$ '&(ʻ 1'(&,ʻ ")&ʻ 5,#4 +#'+ʻ)&,& 'B@&8#,&ʻ !#'"$ '&(] 5,#4 (&(ʻ $-*$?+6ʻ ")$"ʻ $-")#1.)ʻ +1!)ʻ 5&""#"ʻ $+ʻ $8#,&+$ (ʻ %$?ʻ)$4&ʻ @&&'ʻ 2,&8&,,&(6ʻ "ʻ +)$--ʻ '&4&,")&-&++ʻ @&ʻ -$*81-6ʻ 8ʻ ")&ʻ +$%&ʻ +)$--ʻ @&ʻ (+N $--#*&(6ʻ 8#,ʻ +1!)ʻ 5&,+#"ʻ ,ʻ 5&,+#'+ʻ '>1,&(ʻ @?ʻ +1!)ʻ 88&'!&ʻ $+ʻ $8#,&+$ (ʻ "#ʻ +&&:ʻ 8#,ʻ $"+8$!"#"$'(ʻ 3$%$.&+ʻ @?ʻ $V +1!)ʻ E$?+ʻ $'(6ʻ &$'+ʻ $+ʻ $1")#, L&(ʻ #,ʻ (,&!"&(ʻ @?ʻ $'ʻ !"ʻ 2$++&(ʻ 'ʻ ")&ʻ 5$,N -$%&'"ʻ #8ʻ ʻ ")&ʻ *&'"?B")ʻ ,(ʻ $'(ʻ *&'"?B8#1,")ʻ &$,+ʻ #8ʻ ")&ʻ -&.'ʻ #8ʻ +ʻ $>&+"?ʻ D '.ʻ ʻ ")&ʻ),(6ʻ '""1-&(ʻ ʻ ʻ

H ʻ U ʻ ʻ* ʻ ʻ ʻ ʻ> ʻ ʻ ʻ"ʻ N ʻ " ʻ ʻ1 *ʻ ʻ ʻ ʻ ʻ ʻ ʻ 5 ʻ ʻ $ ʻ ʻ"ʻ ʻ ʻ ʻ ! ʻ ʻ* ʻ ʻ ʻ * + ʻ ʻ ʻ ʻ> ʻ B ʻ #,ʻ $'?ʻ #")&,ʻ !"ʻ #,ʻ !"+ʻ 'ʻ 8#,!&ʻ "ʻ ʻ $'?ʻ ")'.ʻ)&,& 'ʻ !#'"$ '&(ʻ "#ʻ ")&ʻ !#'",$,?ʻ '#"N *")+"$'('.

CC7 H23 #E /D723 #4ʻ 3ʻ 272/ DE 2#G (#3 #4D#^ H DE 3 ʻ OD 7 G4DG Z 3" 3"D DH/D^ 32/6

<ʻ '(ʻ @&ʻ "ʻ &'$!"&(ʻ)$"ʻ $V 22- !$"#'+ʻ 8#,ʻ &&+6ʻ 5#1'($.&+6ʻ #,ʻ #")&,ʻ #'"'.&'! &+ʻ #,ʻ 5$?%&'"+ʻ *)$"+#&4&,6ʻ +$4&ʻ $'(ʻ &9!&2"ʻ 8 9&(ʻ $''1$-ʻ $-$, &+6ʻ 8#,ʻ *) !)ʻ H,$'(ʻ R1, &+ʻ '#*ʻ $,&ʻ #,ʻ)&,&N $8"&,ʻ %$?ʻ @&ʻ $1")#, L&(ʻ @?ʻ 3$*ʻ "#ʻ %$:&ʻ 5,&+&'"%&'"+6ʻ +)$--6ʻ *")ʻ $ʻ 81--ʻ 3&"$-ʻ #8ʻ ")&ʻ 5$," !1-$,+ʻ $'(ʻ %#1'"ʻ ")&,&#8ʻ @&ʻ -#(.&(ʻ *")ʻ ")&ʻ &!,&"$,?ʻ #8ʻ &$!)ʻ H,$'(ʻ R1,?ʻ 9ʻ !-&$,ʻ 3$?+ʻ $"ʻ ")&ʻ -&$+"ʻ 2,&4 #1+6ʻ "#ʻ ")&ʻ 3$?ʻ "#ʻ @&ʻ $22# '"&(ʻ 1'(&,ʻ ")&ʻ 5,#4+#'+ʻ #8ʻ ") +ʻ !"ʻ 8#,ʻ %&ʻ 2$''&--'.ʻ +1!)ʻ H,$'(ʻ R1,?ʻ $'(ʻ +1!)ʻ &!,&"$,?ʻ +)$--ʻ '+&,"ʻ " E,"'.ʻ$'ʻ @+",$!"ʻ #8ʻ +1!)ʻ 22- !$"#'+ʻ $"ʻ ")&ʻ ##"ʻ #8ʻ ")&ʻ 2,#2&,ʻ !)&(1-&ʻ *) !)ʻ)&ʻ +ʻ ,&C1 "&(ʻ "#ʻ (&- 4&,ʻ "#ʻ ")&ʻ #,&%$'ʻ #8ʻ ")&ʻ H,$'(6ʻ R1,?6ʻ $'(ʻ $-+#ʻ $"ʻ ")&ʻ ##"ʻ #8ʻ ")&ʻ #2?ʻ *) !)ʻ)&ʻ +ʻ ,&C1 ,&(ʻ "#ʻ :&&2ʻ 'ʻ)+ʻ 88!&ʻ 8#,ʻ ")&ʻ '+2&!"#'ʻ 8ʻ ")&ʻ 51@- !ʻ] 5,#4 (&(ʻ $-*$?+6ʻ ")$"ʻ +1!)ʻ 5,&+&'"%&'"+ʻ 8#,ʻ &&+6ʻ 5#1'($.&6ʻ #,ʻ #")&,ʻ #'"'.&'! &+ʻ #,ʻ 5$?%&'"+6ʻ ")&ʻ 5$," !1-$,+ʻ $'(ʻ %#1'"ʻ *)&,&#8ʻ !$''#"ʻ @&ʻ $+!&,"$ '&(ʻ +#ʻ $+ʻ "#ʻ $--#*ʻ #8ʻ ")&,ʻ @&ʻ '.ʻ +2&! 8 &(ʻ *)&'ʻ ")&ʻ 22- !$"#'ʻ ")&,&8#,ʻ +)$--ʻ @&ʻ -#(.&(ʻ *")ʻ ")&ʻ +$(ʻ &!,&"$,?ʻ$"ʻ")&ʻ %&ʻ $8#,&+$ (6ʻ %$?ʻ @&ʻ %$(&ʻ @?")&ʻ H,$'(ʻ R1,?6ʻ $-")#1.)ʻ +1!)ʻ 5$," !1-$,+ʻ $'(ʻ %#1'"ʻ +)$--ʻ '#"ʻ)$4&ʻ @&&'ʻ +#ʻ +2&! 8 &(;

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L ʼ $ B ʼ ʼ (2Cʼ Qʼ U

$'?ʼ 1%ʼ #8ʼ #'&?ʼ $+ʼ 1'2$ (ʼ #,ʼ 'ʼ $,,&$,ʼ #1"ʼ #8ʼ $'?ʼ $,#'?ʼ #,ʼ $-8ʼ $,#'?6ʼ #1'"?ʼ #8ʼ $ʼ "?ʼ #,ʼ #*'6ʼ "#ʼ @&ʼ ,$ +&(ʼ $'(ʼ -&4 &(ʼ #'ʼ +1!)ʼ $,#'?6ʼ $-8ʼ $,#'?6ʼ #1'"?ʼ #8ʼ $ʼ "?ʼ #,ʼ #*'6ʼ 'ʼ +)$--ʼ)&ʼ %$(&ʼ "#ʼ $22&$,ʼ @?ʼ 88 ($4'ʼ "#ʼ +1!)ʼ H,$'(ʼ R1,?ʼ ")$"ʼ +1!)ʼ 1%ʼ +ʼ $!"1$--?ʼ 'ʼ $,,&$,ʼ $'(ʼ 1'2$ (ʼ @?ʼ +1!)ʼ $,#'?6ʼ $-8ʼ $,#'?6ʼ #1'"?ʼ #8ʼ $ʼ "?ʼ #,ʼ #*'

< ʼ '(ʼ @&ʼ "ʼ &'$!"&(ʼ)$"ʼ 8ʼ $'?ʼ 5&,+#'ʼ +)$--ʼ @&ʼ +1&(ʼ %#-&+"&(6ʼ #,ʼ ",#1@-&(ʼ 8#,ʼ 21"" '.ʼ '"#ʼ &9&!1" #'ʼ $'?ʼ #8ʼ ")&ʼ 5#*&,+ʼ !#'"$ '&(ʼ 'ʼ ") +ʼ !"6ʼ #,ʼ 8#,ʼ (#'.ʼ $'?ʼ !"6ʼ $""&,6ʼ #,ʼ)'.ʼ 21,Bʼ +1$'"ʼ ")&,&"#6ʼ +1!)ʼ 5&,+#'ʼ +)$--ʼ $'(ʼ %$?ʼ 2-&$(ʼ ")&ʼ H&'&,$-ʼ ++1&6ʼ $'(ʼ .4&ʼ ")&ʼ +2&! $-ʼ $""&,ʼ 'ʼ 4 (&'!&6ʼ $'(ʼ %$?ʼ $4#*ʼ ")&ʼ "$: '.ʼ $'?ʼ 3 +",&++ʼ #'ʼ ")&ʼ $!" '.ʼ ,&$+1,&,ʼ $'(ʼ R1+" !&+ʼ E$,,$'"ʼ %&,&-?6ʼ * ")#1"ʼ .#'.ʼ '"#ʼ #")&,ʼ "-&ʼ #,ʼ 1")#, "?ʼ $'(ʼ 8ʼ ")&ʼ 5-$ '" 88#,ʼ 5-$ '" 88+ʼ +)$--ʼ @&ʼ '#'+1 "&(6ʼ $'(ʼ R1(.%&'"ʼ .4&'ʼ $.$ '+"ʼ) %6ʼ)&,6ʼ #,ʼ ")&%6ʼ 12#'ʼ 3&%1,,&,ʼ #,ʼ #")&,* +&6ʼ #,ʼ $ʼ <&,(!"ʼ 2$++ʼ 8#,ʼ ")&ʼ 3&8&'($'"ʼ #,ʼ 3&8&'($'"+6ʼ #,ʼ $ʼ 3 +% ++ʼ 12#'ʼ $ʼ 4-ʼ --6ʼ +1!)ʼ 3&8&'($'"ʼ #,ʼ 3&8&'N ($'"+ʼ +)$--ʼ)$4&ʼ) +6ʼ)&,6ʼ #,ʼ ")&,ʼ ,&@-&ʼ #+"+6ʼ "#ʼ @&ʼ ,&!#4&,&(ʼ @?ʼ +1!)ʼ &")#(ʼ $'(ʼ $''&,ʼ *)&,&@?ʼ $*ʼ #+"+ʼ $,&ʼ .4&'ʼ "#ʼ 3&8&'N ($'"+ʼ $'(ʼ ")$"ʼ ")&ʼ +#-&%"ʼ 88 ,%$"#'ʼ #,ʼ 3&!-$,$"#'ʼ #8ʼ $ʼ T1$:&,ʼ +)$--ʼ @&ʼ $(&1(.&(ʼ $'(ʼ "$:&'ʼ "#ʼ @&ʼ #8ʼ ")&ʼ +$%&ʼ #,!&ʼ $'(ʼ 88&!"6ʼ "#ʼ $--ʼ '"&'"+ʼ $'(ʼ 51,2#+&+6ʼ 'ʼ $'?ʼ $+&ʼ *)&,&ʼ @?ʼ ") +ʼ !"ʼ $'ʼ $")ʼ +ʼ ,&C1:&(ʼ "#ʼ @&ʼ "$:&'6ʼ $+ʼ 8ʼ +1!)ʼ T1$:&,ʼ)$(ʼ "$:&'ʼ $'ʼ $")ʼ 'ʼ ")&ʼ #,%ʼ 2,&+!, @&(ʼ #,ʼ 'ʼ ")&ʼ 1+1$-ʼ #,%+

< ʼ '(ʼ @&ʼ "&'$!"&(ʼ)$"ʼ *)&'ʼ $'?ʼ 3 +",&++ʼ +)$--ʼ @&ʼ %$(&ʼ 8#,ʼ $'?ʼ 1%ʼ #,ʼ 1%+ʼ #8ʼ #'&?ʼ "#ʼ @&ʼ -&4 &(ʼ @?ʼ 4 ,"1&ʼ #8ʼ ") +ʼ !"6ʼ ")&ʼ 3 +",&++ʼ "+&-8ʼ +)$--ʼ '#"ʼ @&ʼ (&&%&(ʼ 1'-$*8 (6ʼ '#,ʼ ")&ʼ 5$,"?ʼ #,ʼ $,"&+ʼ %$: '.ʼ ")&ʼ +$%&ʼ @&ʼ (&&%&(ʼ $ʼ ,&+2$++&,ʼ #,ʼ ,&+2$++&,+6ʼ #'ʼ $!!#1'"ʼ #8ʼ $'?ʼ 3&8$1-"ʼ #,ʼ E$'"ʼ #8ʼ #,%ʼ 'ʼ $'?ʼ 5,#!&&('.+ʼ ,&-$"ʼ '.ʼ ")&,&"#6ʼ '#,ʼ +)$--ʼ ")&ʼ 5$,"?ʼ #,ʼ 5$,"&+ʼ (+",$ ' '.ʼ @&ʼ (&&%&(ʼ $ʼ ,&+2$++&,ʼ #,ʼ ,&+2$++&,+ʼ ʼ #'ʼ $!!#1'"ʼ #8ʼ $'?ʼ +1@+&C1&'"ʼ ,,&.1-$, "?ʼ #'ʼ ")&ʼ 5$,"ʼ #8ʼ ")&ʼ 5$,"?ʼ #,ʼ 5$,"&+ʼ (+",$ '.6ʼ @1"ʼ ")&ʼ 5&,+#'ʼ #,ʼ 5&,+#'+ʼ $..,&4&(ʼ @?ʼ +1!)ʼ ,,&.1-$, "?ʼ %$?ʼ ,&!#4&,ʼ 81--ʼ $"+8$!" #'ʼ 8#,ʼ ")&ʼ +2&! $-ʼ 3$%$.&+ʼ 'ʼ $'?ʼ !"#'ʼ #'ʼ ")&ʼ $+&

ʼ '(ʼ @&ʼ "ʼ &'$!"&(ʼ)$"ʼ "ʼ +)$--ʼ '#"ʼ @&ʼ -$*81-ʼ 8#,ʼ $'?ʼ R1+" !&ʼ #8ʼ ")&ʼ 5&$!&6ʼ #,ʼ $'?ʼ #")&,ʼ 5&,+#'ʼ "#ʼ (&%$'(ʼ #,ʼ "$:&ʼ $'?ʼ %ʼ #8ʼ #'&?ʼ #,ʼ $'?ʼ &*$,(ʼ 8#,ʼ +*&$,, '.ʼ $'?ʼ 88 ($4'ʼ "#ʼ @&ʼ %$(&ʼ @?ʼ 4 ,"1&ʼ #8ʼ ") +ʼ !"

ʼ '(ʼ @&ʼ "ʼ &'$!"&(ʼ)$"ʼ $8"&,ʼ ")&ʼ 2$++ '.ʼ #8ʼ ") +ʼ !"ʼ "ʼ +)$--ʼ '#"ʼ @&ʼ -$*8"(ʼ 8#,ʼ $'?ʼ 5&,+#'ʼ)#-('.ʼ ")&ʼ 88 !&ʼ #8ʼ &!,&"$,?ʼ #8ʼ ")&ʼ H,$'(ʼ R1,?ʼ "#ʼ @&ʼ "ʼ ")&ʼ +$%&ʼ %&ʼ -&,.: #8ʼ ")&ʼ 5&$!&ʼ V,ʼ ,&$+1,&,ʼ #8ʼ ")&ʼ #1'"?ʼ $'(ʼ 'ʼ !$+&ʼ ")&ʼ &!,&"$,?ʼ 8ʼ ")&ʼ H,$'(ʼ R1,?ʼ +)$)6ʼ $"ʼ $'?ʼ %&ʼ ,&81+&ʼ #,ʼ '&.-&!"ʼ "#ʼ 2&,8#,%ʼ $'?ʼ #8ʼ ")&ʼ 31"&+ʼ %2#+&(ʼ 12#'ʼ)%ʼ @?ʼ ")&ʼ 5,#4 +#'+ʼ #8ʼ ") +ʼ !"6ʼ +1!)ʼ &!,&"$,?6ʼ @&'.ʼ !#'4 !"&(ʼ ")&,&#8ʼ @&8#,&ʼ ")&ʼ R1(.&ʼ #8ʼ ++ L&6ʼ +)$--ʼ 8#,ʼ +1!)ʼ &81+$-ʼ #,ʼ &.-&!"ʼ 8#,8&ʼ $'?ʼ 1%ʼ '#"ʼ &9!&&('.ʼ 8"?ʼ 5#1'(+6ʼ $"ʼ ")&ʼ 3 +!,&"#'ʼ #8ʼ +1!)ʼ R1(.&

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&%2-#?&(' '' ")&' 9&!1" #'' #8' ") +' !"6' #,' +)$--' $++$1-'' $'?' 1,4&?#,' #,' 3&21"?' 1,4&?#,6' #--&!"#,6' 12&,4 +#,6' 4&,+&&,6' #'",$!"#,6' #,' 5&$!&' 88 !&,' '' ")&' 9&!1" #'' #8' ") +' #,' $'?' #")&,' !'' 8#,' ")&' %$: '.' #,' ,&2$, '.' #8' .)' #$(+6' #,' +)$--' %$:&' #,' $""&%2'' "#' %$:&' $'?' &+!1&' #8' H##(+' (+",$ '&(' #,' +& L&(' @?' 4 ,"1&' #8' ") +' #,' $'?' #")&,' +1!)' !"6' #,' 8' $'?' #'+"$@-&' #,' 1@B #'+"$@-&' +)$--' ,&81+&' #,' '&.-&!'' "#' &9&!1"&' $'?' E$,,$'' .,$'"&(' @?' $'?' R1+" !&' #8' ")&' 5&$!&' 21,+1$'' "#' $'?' 5#*&,' @?' ") +' !'' !,&$"&(6' &4&,?' +1!)' 5&,+#'' #8N 8&'('.' ")&,& '6' $'('@& '.' !#'4 !"&(' ")&,&#8' @&8#,&' $'?' *#' R1+" !&+' #8' ")&' 5&$!&' $'' 5&""?' &++ #'+6' @?' ")&' $")' #8' '&' !,&(@-&' E "'&++6' +)$--' 8#,' &4&,?' +1!)' 88&'!&' 8#,8&'' $'?' 1%' '#'' &9!&&('.' &'' 5#1'(+' '#,' -&++' ")$'' N ') -- '.+6' $'' ")&' 3 +!,&" #'' #8' +1!)' R1+" !&+' $'(' '' !$+&' ")&' +$%&6' +)$--' '#'' @&' 2$ (6' +1!)' R1+" !&+' $,&')&,&@?' &%2#*&,&(' $'(' ,&C1 ,&(' "#' !#%%'' +1!)' 88&'(&,' "#' $'?' H$#-6' , (&*&--6' #,' #1+&' #8' #,,&!" #'' 8#,' $'?' %&' '#'' &9!&&('.'),&&' #'")+6' #,' 1'" -' ")&' +$ (' #,8& "1,&' +)$--' @&' 2$ (

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' '(' @&' ''&'$!"&(')$'' 8' $'?' 5&,+#'' +)$--' * -81--?' +*&$,' #,' $88 ,%' 8$-+&-?' '' $'?' $")' #,' 88 ,%$" #'' %$(&' #,' "$:&'' @?' 1")#BB' ,"?' #,' 1'(&,' $'?' #8' ")&' 5,#4 + #'+' #8' ") +' !"6' &4&,?' +1!)' 5&,+#'' @& '.' ")&,&#8' !#'4 !"&(' +)$)' @&' $(>1(.&(' .1 -"?' #8' * -81-' $'(' !#,,12"' 5&,>1,?6' $'(' '!1,' ")&' 5$ '+' $'(' 5&'$-"&+' '' +1!)' $+&' @?' $*' 2,@D' 4 (&(' $'(' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' $'?' H,$'(' R1,?6' * ")#1'' $'?' 2,&4 #1+' 22- !$" #'' "#' 2&! $-' &++ #'+6' "#' %$:&' +1!)' 5,&+&'"N %&'"+' 8#,' (&8,$? '.' ")&' 5,#+&!1" #'' #8' +1!)' 3&- 'C1&'' $+' "#' ")&%' %$?' +&&%' 8 "" '.' $'(' &92&(&'"

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3"D' C/DED#3'
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H"DG I7DE'
+2/3' .'3"D'
H3

' '(' @&' ''&'$!"&(')$'' ")&' +&4&,$-' 1%+' #8' #'&?' '' ") +' !'' %&'" #'&(' +)$--' @&' (&&2"&(' "#' @&' ")&' 2,&+&'' -$*81-' #'&?' #8' '(' '$'(' <*' '-' $'(' ")$'' ")&' !)&(1-&+' $''&9&(' "#' ") +6' !'' +)$--' @&' (&&%&(' $'(' "$:&'' "#' @&' 5$,'' ")&,&#86' $'(' ")$'' ")&' #,%+' ")&,& '' !#'"$ '&(6' $'(' '#'&' #")&,6' +)$--' @&' %$(&' 1+&' #8' '' $--' $+&+' "#' *) !)' +1!)' #,%+' +)$--' @&' $22- !$@-&'] 5,#4 (&(' $-*$?+6' ")$'' '' +)$--' $'(' %$?' @&' -$*81-' "#' &,$+&' #,' $-"&,' $'?' E #,(+' '' +1!)' #,%+' +#' $+' "#' %$:&' ")&%' $22- !$@-&' "#' $'?' 2$," !1-$,' $+&6' * ")#1'' %$"&N , $--?' $-"&, '.' ")&' 1@+"$'!&6' @1'' '#' 81,")&,

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$'?' #1'"?' $" -$,.&6' #,' #1'"?' #8' $' "?' #,' #1'"?' #8' $' #*'' $'('
"?6' #,' "?' #,' #*'' $'(' #1'"?6' 1'-&++' ")&' !#'",$,?' ")&,&#8' +)$--'
@&' &92,&++&(6' #,' ")$" +1!)' #'+",1!"#'' +)$--' @&' '!#'+ +"&'" * ")' #,'
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-$*81-' 8#,' ")&' H,$'(' R1,?' #8' $'?' #1'"?6' @?' 5,&+&'"%&'"6' "#' (4 (&'
$'?' $,#'?' #,' $-8' $,#'?' ")&,&#8' '"#' '&' #,' %#,&' 1@(4 + #'+6' W'
&$!)' *)&,&#8' +)$--' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' $'(' 8#,' $--' 51,2#+&+'
,&-$" ' .'"#' ")&' 2,&+&'" '.6' ,$ + ' .6' $'(' -&4? ' .#8 #'&?' 8#,' $'?' $""&,'
#,') ' .' 8#,' *) !)' 5,&+&'"%&'" %$?' @&' -$*81--?' %$(&' @?' H,$'('
R1, &+6' @&' (&&%&(' $'(' "$:&'' "#' @&' $' $,#'?' #,' $-8' $,#'?6' $+' +1!)'
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#1 ' "? #8 = F + #8 $ ' (#8 (# R !&," 8?)$" " + '&!&++$,? "# %$:& W ,&2$, i 5&, !)&+ #8 $ ##"2$") # ' ")& #$(8,#% "# @&" * && ' $ ' ($-- ' ")& $,# ' ? #8 ' ") + #1 ' "? $ ' (* & 2,#2#+& ")$" ")& 92& ' !& #8 ")& $8#,&+$ (E #, : +)$-- @& (&8 ,$?&(@? ")& #1 ' "? $" -$, . & W $,# ' ? $-8 $,# ' ? #8 i6 $ ' (")$" 5,&+& ' "%& ' " 8#, +1!) 51,2#+& %$? @& %$(& 1 ' (&, $ ' (@? 4 ,"1& #8 ")& &!" # ' #8 ")&)$2"&, #8 W V2 @& ' . $ ' !" 8#, W 5 ,C

F . ' &([, ,

1 * > * * + 1 ,

(I #36 . C ; ! ")& 1% #8 @2E R @? 4 ,"1& #8")& &!" # ' #8")&)$2"&, W C @& ' . $ ' !" 8#, W 5 C 2,&+& ' "&($" ++ L&+6 ")& &$, "# @& &92& ' (&(' 5&, !)&+ #8 $ ##"2$") # ' ")& #$(8,#% "# @&" * && ' $ ' ($-- ' ")& $,# ' ? #8 ' ") + #1 ' "?] ' (Z "D/D2E` !# ' ",$!"&(8#, ")& E #, : $8#,&+$ ( ] # * ") + + "# !&," 8?)$")$4& 8$ ")81--? $ ' ( )# ' &+"-? %$(& $ ' (,&2$,&(5&, !)&+ #8 $ ##"2$") # ' ")& +$ (#$(' !# ' 8#,% "? "# ")& 5,&+& ' "%& ' "6 $ ' (")$" &4&,? 5$," #8")& +$ (E #, : *$+ 8 ' +)&(# ' ")& 3$? #8

3V X [

1 * $)) $ " * ,

#1 ' "? # 8 E + #8 , $ ' (#8 (# !&," 8?)$" * &)$4& -$"&-? 4 & * &(5 !)&+ #8 $ #$(#4&, $ ' ")& # * ' -$ ' (#8 ' ") + #1 ' "?6 # ' ") ! #$(8,#% ")& $, : &" # * ' #8 "# ")& $, : &" # * ' #8 $ ' (* & $,& #8 #2 ' # ' ")$" 0 "

L B (2C Q Q0

" *#1-(@& 1+&81- W / + b- $'(*& 2,#2#+&
")$" ",& 92&'!& #8 ")& $8#,&+$ (E#,: +)$-- @& (&8,$?&(@? ")&
#1'"? $" -$,.& W $,#'? $-8 $,#'? #8 >6 $'(
")$" 5,&+&'"%&'" 8#, +1!) 51,2#+& %$? @& %$(& 1'(&, $'(@? 4 ,"1&
#8 ")& &!" #' #8 ")&)$2"&, #8 W
b @& '. $' !" 8#, W 5 b
X .'&([, (,
=

1 *' > * $)
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#1'"? #8 P F 2+6+ ")& 1% #8
6 & *$+ @? 4 ,"1& #8 ")& &!" #' #8 ")&
)$2"&, W b @& '. $' !" 8#, W
5 b 2,&+&'"&($" ++ L&+6 ' ")& &$,
"# @& &92&'(&($ $'(,&%$: '.
")& #$(#4&, ")& +$%&6 ' ")& #*'-$'(#8
' ") + #1'"?6 #' ")& #$(8,#% ")& $,:&" #*' #8
"# ")& $,:&" #*' #8] '(*)&,&$+ !#'",$!"&(8#, ")&
E#,: $8#,&+$ (] #* ") + + "# !&," 8?)$")$4& 8$ ")81--? $'(
)#'&+"-? &9&!1"&(")& +$ (E#,: ' !#'8#,% "? "# ")& 5-$'6 +" %$"&6
&!" #'6 $'(2&! 8 !$" #' $.,&&("# @? ")& H,$'(R1,? $" ")& %& #8
")& 5,&+&'"%&'" @& '. %$(&6 $'(")$" ")& +$%& + &9&!1"&(21,+1$'"
"# ")& +$ (5,&+&'"%&'"6 $'(")& #$(#4&, ")& +$%& + !#%2-&"&-?
8 ' +)&(' &4&,? 5$,"6 +# $+ "# @& &&" ' ")& -&$, #8
$-- 3 "!)&+6 $':+6 3,$ '+6 #, &'!&+ $'(")$" &&"
* (& ' ")& &'",& #8 ")& +$ (#$(+ %$(& * ")
$'B&-+ #8 "#'&+ $'(H,$4&- $'(")$" " + +$8& $'(-&4&- "),#1.)#1"
")& *)#-& #8 ")& +$ (E (") 8#, $,, $.&+ "# 2$++ $'(,&2$++ #'6 * ")
$,&.1-$, $-- 8,#% ")& &'",& #8 +$ (#$("# &$!) (& ,&+2&!" 4&-?6
$'(")$" ")&,& + $ +188 ! &'" 5$++$.& #' &$!) (& #8 ")& +$ (#$(
"# 2,&4&'" ")& E$"&, 8,#% '>1, '. ")& +$%& $'(")$" ")& *)#-& #8
")& +$ (E#,: *$+ 8 ' +)&(#' ")& 3$? #8

3V X [

1 *' *#
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> $'(#8
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$'(")$" " * V @& 1+&81- "# W / +b $"
' ") + #1'"? $""(*& 2,#2#+& ")$" ")& 92&'!& #8 "- & $8#,&Z (
E#,: +)$-- @& (&8,$?&(@? ")& #1'"? $" -$,.& W $,#'? $-8
$,#'? #8 i6 $'(")$" 5,&+&'"%&'" 8#, +1!) 51,N
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")&)$2"&, #8 W , b @& '. $' !" 8#,
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U T L B 2C Q

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> #8 ")& &!" #' #8")&)$2"&, W
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2,&+&'"&(;$" ++ L&+6 ' ")& &$,
"# @& &92&'(&(' $"
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#*'-$'(+ #8 ' ") + #1'"?] '(*)&,&$+
!#'",$!"&(8#, ")& E#,: $8#,&+$ ($" ")& $"& #8]
#* ") + + "# !&," 8?)$")$4& 8$ ")81--? $'( )#'&+"-? 2&,8#,%&(
")& +$ (E#,:6 ' !#'8#,% "? "# ")& $ (5,&+&'"%&'"6 $'(")$" &4&,?
5$," #8")& +$ (E#,: *$+ 8 ' +)&(#' ")& 3$? #8

3V XH [

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#8 (# !&," 8?)$" *&)$4& %&$+1,&(
5&,!)&+ #8 ")& #$(8,#% "#
@&"*&&' $'($-- ' ")& $,#'? #8
' ") + #1'"?6 *)&,& ")&,& $,& 5&,!)&+ #8 %%&($"&-?
$(># ' '. ")& +$ (#$(6 #8 ")& $4&,$.& ,&$(") #8 $'(
3&2") #8 %&$+1, '. 1@ ! $,(+6 *) !)
$,& #2&' $'(($'.&,#1+ 8#, 5$++&'.&,+ $'(,$4&--&,+6 $'(")$" "" +
'&!&++$,? 8#, ")& $8&"? $'(&!1, "? #8 ")& 51@- ! 8,&C1&'" '. +1!)
#$("# 8 -- 12 ")& +$%&7 $'("# %$:& $ +188 ! &'" $': 6 E$--6 #,
&'!&6 * ") ")& ,&'!) #, 3,$ ' #' ")& &-((&")&,&#8 $'(*&
2,#2#+& ")$" ")& 92&'!& #8 ")& $8#,&+$ (E#,: +)$--)& (&8,$?&(@?
")& #1'"? $" -$,.& W $,#'? $-8 $,#'? #8
$'(")$" 5,&+&'"%&'" 8#, +1!) 51,2#+& %$? @& %$(& 1'(&, $'(@?
4 ,"1& #8 ")& &!" #' #8 ")&)$2"&, #8
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+$ (' E#, : '] #* ' ") + + "# !&," 8?6)$" ')$4& 8$ ")81--? $' (')#'&+"-?
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3V ' X [

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*) !)' $,& ($' .&,#1+ 8#, ' ,$4&--&,+ $' (' 5$++&' .&,+6 $' (' *) !)A $,&
%%&($"&-? $(># ' ' . ' ")& (& #8 ")& #$(' 8,#%
"# @&" * &&' $ ' (' $--
' ")& $,#'? #8 ' ") + #1 ' "? ' $' (' *& 2,#2#+&
"- $" ")& 92&' !& #8 ")& $8#,&+$ (' &2$,+ +)$-- @& (&8,$?&(' @? ")&
#1' "? $" -$, .& Hd ' ")& $,#'? ' $-8 $,#'? #8 R6
$' (' ")$" 5,&+&' "%&' " 8#, ' +1!)' 51,2#+& %$? @& %$(& 1' (&, ' $' (' @?
4 ,"1& #8 ")& &!" #' #8 ")&)$2"&, ' #8
H& ' ' ' ' #b ' @& ' . ' $' ' !" 8#, ' W ' ' ' ' 5 ' '
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3 "!)&+ $' (' ")& #-&+ %%&($"&-? $(># ' ' . ' ")& (& #8 ")& #$('
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",$!"&(' 8#, ' ")& 5&,8#,%$' !& #8 ")& $8#,&+$ (' E#, : '] #* ' '
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")+' #1'"?6' *)&,&' "' +' ($'.&,#1+' 8#,' 5$++&'.&,+' "#' 2$++' $'(' ,&2$++6'
$+' ")&,&' $,&' '#' $':+' #,' #")&,' &'!&' "#' 2,#"&!"' 5$++&'.&,+' 8,#%' ")&'
3$'.&,' *) !)' $, +&+' 8,#%' 38$ '+' #'' ")&' (&' ")&,&#8' $'(' ")$"' "' +'
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")&' +$ (' 3,$ '+' $'(' *&' 2,#2#+&' ")$"' ")&' 92&'!&' #8' ")&' $8#,&+$ ('
&2$,+' +)$--' @&' (&8,$?&(' @?' ")&' #1'"?' $"' -$,.&' Y ' $,#'?' ' $-8'
$,#'?' #8' i6' $'(' ")$"' 5,&+&'"%&'' 8#,' +1!)' 51,2#+&
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Y ' ' ' ' V' @& '.' $'' !' 8#,' Y ' ' ' '5 ' '
' V' 2,&+&'"&(' $"' ++ L&+6' '' "-&' &$,
"#' @&' &92&'(&(' '' %$: '.'
5&,!)&+' #8' #'' ")&' (&' #8' ")&' #$(' 8,#%
"#' @&"*&&'' $'(
*)&,&' "' ,1'+' "),#1.)' $' #.6' *) !)' *$+' ($'.&,#1+' 8#,' 5$++&'.&,+'
8,#%' ")&' 3,$ '+' #'' ")&' (&' #,' (&+' ")&,&#86' '' ")&' $,#'?' #8'
'' ")+' #1'"?6' @& '.' $"' ")&' $"&' #8'
@?' ")&' 5&,!)'] '(' *)&,&$+' ' !#'",$!"&(' 8#,' ")&' E#,:' $8#,&+$ (]
#*' ") +' +' "#' !&,"8?')$"')$4&' 8$ ")81--?' $'(')#'&+"-?' &9&!1"&(' +$ ('
E#,:6' '' !#'8#,% "?' "#' +$ (' 5,&+&'"%&'"6' ")$"' ")&' E#,:' +' &88&!"1$--?'
&9&!1"&(6' $'(' ")$"' "' *$+' 8 ' +)&(' #'' ")&' 3$?' #8

3V 'XD [

1 *' ' ' '* + ' $ ' ' '(
' * ' ' '
,

#1'"?'#8' ' F+' #8' $'(' #8
R' (#' !&,"8?')$"' "' +' '&!&++$,?' "#
5&,!)&+' #8' 3,$ '6' %%&($"&-?' $(>#' ' '.' ")&' (&' #8' ")&' #$(' 8,#%'
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L $ B (2C Q

$-- ' ")& $,#'?#8 '")+ #1'"?6 X+1!) 3,$ '+ '#" "#
@& '&$,&, ")$' &&" 8,#%6 ")& &'",& #8")& +$ (#$(6[
+# $+ "# %$:& ")&%6 &&" * (& $" #26 &&"
2&,2&'(!1-$, 3&2")6 $'(&&" * (& $" #""#%6 *) !)
$,& '&!&++$,? 8#, !#'4&? '. ")& E$"&, ")&,&8,#%6 *) !) '>1,&+ +$ (
#$($'(*& 2,#2#+& ")$" ")& +$%& +)$-- @& (&8,$?&(@? ")& #1'"?
$" -$,.& Hd $,#'? $-8 $,#'? #8 i6 $'(")$" 5,&N
+&'"%&'" 8#, +1!) 51,2#+& %$? @& %$(& 1'(&, $'(@? 4 ,"1& #8
")& &!" #' #8")&)$2"&, #8 W H
@& '. $' !" 8#, W 5 b
X .'&([6 ,(,
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> #8 ")& &!" #' #8 ")&)-$2"&, #8
W QH @& '. $' !" 8#, W 5
b 2,&+&'"&($" ++ L&+6 '")& &$,
"# @& &92&'(&(' 5&,!)&+ #8 3,$ '+ #'")& (& #8")&
#$(*)&,& ")& E$"&, '>1,&(")$" 5$," #8")& #$(8,#%6
"# @&"*&&' $'($-- '")&
$,#'? #8 '")+ #1'"?] '(*)&,&$+ !#'",$!"&(
8#, ")& E#,: $8#,&+$ (] #*")+ + "# !&," 8?)$")$4& 8$ ")81--?
$'( )#'&+"-? 2&,8#,%&(+$ (E#,:6 !#'8#,% "? "# +$ (5,&+&'"N
%&'" $'(")$" ")& +$ (3,$ '+ $,& #8 ")& 3 %&'+#'+ 7&! 8 &(('
")& 5,&+&'"%&'" $.,&&("# 6@? ")& H,$'(R1,?6 $'($,& &88&!"1$--?
&9&!1"&($'(")$" ")& E$"&, .&88&!"1$--? !$,, &(#88 8,#%6 ")$" 5$,
#8 ")& #$($'(")$" ")& +$ (E#,: *$+ 8 '+)&(#' ")&
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3V X [

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,&C1 + "& $'('&!&++$,? "# &,&!" #' ")& #$(-&$('.
8,#%6 "# @&"*&&' ")&
$,#'? W $-8 $,#'?i #8 '") + #1'"? $'(*&
2,#2#+& ")$" ")& 92&'!& 8#, ")& $8#,&+$ ((&+"2'&+ #, '.&, 5&+"+
+)$V @& (&8,$?&(@? ")& #1'"? $" -$,.& W $,#'? $-8 $,#'?
#8 6 i6 $'(")$" 5,&+&'"%&'" 8#, +1!) 51,2#+& %$? @&
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R &!" #'' #8' ")&')$2"&,' #8' W ' '
' QH' @& '.' $'' !'' 8#,' W ' ' ' ' 5 ' ' ' V' 2,&N
+&'"&(' ++ L&+' '' ")&' &$,' "#' @&' &92&'(&(
'' &,&!" '.' #'' ")&' #$(' -&$('.' 8,#%' "#
@&"*&&'' $'(' '' ")&' $,#'?' W ' $-8' $,#'?
#8' '' ") +' #1'"?6' @& '.' $'' ")&' $"&' #8' 8#,
&$!)' ' '(' *)&,&$+' ' !#'",$!"&(' 8#,' ")&' 5&,8#,%$'!&' #8' ")&' $8#,&+$ ('
E #,:' #*' ' (#' !&," 8?')$'' ')$4&' 8$ ")8#--?' $'(
)#'&+"-?' &,&!"&(' '' !#'8#,% "?' "#' ")&' 5,&+&'"%&'' %$(&
@?' ")&' H,$'(' R1,?6' $'(' ")$'' ")&' E #,:' +' &88&!"1$--?' &9&!1"&(6' $'('
*$+' !#%2-&"&(' #'' ")&' 3$?' #8'

3V 'X

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#1'"?' #8' ' #8' '' ")&
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'' ")&' $,#'?' #8' '' ") +' #1'"?6' (#' !&," 8?')$''
")&' +$ (5&,!)&+' $'(' &4&,?' 5$,'' ")&,&#8')$4&'
@&&'' :&2'' '' .##(' $'(' +188 ! &'' &2$,' $'(' #'("#'' + '!&' ")&' #%N
%&'!&%&'' #8' %?' #'",$!'' $'(' ")$'' ")&' +$ (
5&,!)&+' $'(' &4&,?' 5$,'' ")&,&#8' $,&' '#*' '' .##(' $'(' +188 ! &'' &2$,'
$'(' #'("#'6' *")' $' ,&.1-$,' $--' 8,#%' ")&' &'",&' "#' ")&' (&+' ")&,&#8'
,&+2&!" 4&-?' 8#,' !$,,? '.' #88' ")&' E $"&,' ")&,&8,#% ' $'(' ")$'' '' +' 8,&&'
8,#%' 1 +$'!&+6' $'(' #8' ")&' ,&$(")' ,&C1 ,&(' @?' $* ' $'(' ")$'' ")&,&'
)$+' '#'' @&&'' $'?' #'&?' 2,&+&'"&(' "#' @&' -$ (' #1'' #'' $'?' 5$,'' #8'
")&' #$(' X"#' *) !)' ' $%' #'",$!"#,[' + '!&' ")&' #%%&'!&%&'' #8' %?'
#'",$!"6' @1'' ")&' *)#-&' #8' ")&' &2$,+6' Z!')$4&' @&&'' %$(&' $'' %?' #*''
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(&"&,,&(' @?'),&$"+' $'(' 5,#% +&+' 8,#%' (+!)$,. '.' ")&,' 31"?'
$+' 5,#+&!1"#,+6' E "'&++&+6' $'(' R1,#,+' 12#'' , $-' #8' +1!)' , %&+'
$'(' 88&'!&+' '' ")&' ,&+2&!" 4&' #1'" &+' '' *) !)' +1!)' , %&+' $'('
88&'!&+')$4&' @&&'' !#%% ""&(' $'(' ")&,&' +' &$+#'' "#' @&- &4&' ")$"
")&' 5&,+#'+' !#%% "" '.' +1!)' , %&+' $'(' 88&'!&+' $,&' .,&$"-?'
&'!#1,$.&(' '' ")&' #%% ++ #'' ")&,&#8' @?' ")&,' #2&+' #8' @& '.'
$!C1 ""&(' 8' ", &(' @?' ")&' 5&""?' R1,#,+' #8' ")&,' ,&+2&!" 4&' #1'" &+]
#,' ")&' %#,&' %2$," $-' , $-' #8' $--' 5&,+#'+' +#' $+' $8#,&+$ (' #88&'('.6'
@&' '' ")&,&8#,&' &'$!"&(' @?' ")&' D '.;+' %#+"' 9!&--&'' C>&+"?6' @?'
$'(' * ")' ")&' (4 !&' $'(' #'+&'' #8' ")&' #,(+' 2 , "1$-' $'(' &1-B'
/' ' 2#,$-6

'# #G H3 ' #D# '. / '3.D#HDE H O O 33DG # #6 (I#36 # /D72#G! 3"D (I/3 .' D '>;+ 77DIH7 ! IC # CC7 H23 # 7.' 3"D 33 /^ #D6 D#D/27! / IC # 3"D +D3 3 # ' 2#6 +/ ED^ HI3 /! H' FD/ . DG O6 .. G2F 3! O26 /GD/ 3"D / 27 3"D/D . '32]D C72HD # 2#6 2G ' 5 ##4 è I# 6! / # * IO7 #

2#,$-6 $'(#%%#'+6 '' ") + 2,&+&'" 5$,- $%&'" $++&%@-&(6 $'(@? ")& 1")#, "? #8 ")& +$%&)$" 8 $'? '(!"%&'" #, '(!"%&'"+ 8#, $'? 88&'!& #, 88&'!&+ !#%% ""&($8"&, ")& 2$++ '. #8 ") + !" +)$-- @& 8#1'('' $'? #1'"?6 #1'"? #8 $ "?6 #, #1'"? #8 $ #*' ' ' "+)$-- $'(%$? @& -$*81- 8#, + $>&+"?;+ #1," #8 D '.;+ &'!) ' #,6 '' <$!$" #'6 8#, $'? *# R1(.&+ #8 ")& 12&, #, #1,"+ #8 &!#,(#8 12#' ")& 22- !$" #' #8 + $>&+"?;+ ""#, '&? H&'&,$- 8#, #, 12#' ")& 5&" " #' ' $'? 5,#+&!1"#,6 5, +#'&,6 #, ,$4&,+&,6 +1!) 22- !$" #' #, 5&" " #' @& '.4&, 8 &(@? 88 ($4 "+)#* '. ")$" $' %2$," $- , $- !$' '#" @&)$('' ")& #1'"? ' *) !) ")& '(!"%&'" *$+ 8#1'(6 "# %$:& ,(&, X 8 +1!) #1," #, +1!) *# R1(.&+ +)$-- +#") ':8 "[")$" ")& 5&,+#' #, 5&,+#'+ '$%&(+1!) '(!"%&'" #, '(!"%&'"+ +)$-- @& ", &(@? $ R1,? #8 $'? $(># ' '. #1'"?6 #, @? $ R1,? #8 ")& #1'"? #8 ' " $+ ")& +$(#1," #, +1!) *# R1(.&+ +)$-- (,&!"6 $'(")$" ")&,&12#' ")& 5&,+#' #, 5&,+#'+ '$%&(+1!) '(!"%&'" #, '(!"%&'"+ +)$-- @& 2,#!&&(&($.$ '+" $'(", &(12#' +1!) 'N (!"%&'" #, '(!"%&'"+ 8#, +1!) 88&'!&+ @&8#,& ")& +$(#1," #8 D '.;+ &'!)6 #, @&8#,& +1!) #%% ++ #'&,+ #8 ?&, $'(&,% '&, $'(H&'&,$- H$#- 3&- 4&,?6 $+ +)$-- @& $++ .'&(@? + $>&+"?;+ #%% ++ #' 1'(&, ")& H,&$" &$- #8 @? ")& .##($'(-$*81- &' #8 ")& #(? #8 +1!) $(># ' '. #1'"?6 #, #8 ")& #1'"? #8 ' " $+ +)$-- @& (,&!"&(@? +1!) ,(&, $'(+1!) 5,#!&&('.+ +)$-- @& 4$- ($'(&88&!"1$- ' ")& $* "# $-- '"&'"+ $'(51,2#+&+ $+ 8 ")& 88&'!&+)$(@&&'", &(* ") ' ")& #1'"? *)&,& ")& +$%& +)$-- @& !#%% ""&($'(+1!) '(!"%&'" #, '(!"%&'"+ ' +1!) $+&+ +)$-- @& !&," 8 &(1'"# +1!) #1," #8 D '.;+ &'!)6 #, 1'"# +1!) #%% ++ #'&,+6 $+ ")& $+& %$? @&6 12#' + $>&+"?;+ E, " #8 &," #,$, "# @& ++1&(8#, ")$" 51,2#+& $'(") $" $-- +1!) $+&+ '#)$--&'.& "# ")& ,,$? #, "# ")& 5#--+ +)$-- - & #, @& $--#*&(@? ,&$+#' ")$" ")& R1,#,+ (# '#" #,)$4& '#" !#%& 8,#% ")& 2,#2&, #1'"? #, 5-$!& *)&,& ")& 88&'!& *$+ !#%% ""&(6 #, @? ,&$+#' ")$" ")& , $- + #1" #8 ")& #1'"? #, 5-$!& *)&,& +1!) 88&'!& *$+ !#%% ""&(@1" '&4&,")&-&++ 12#' ")& , $-+ #8 +1!) 88&'!&+ ")&)$--&'.& "# $'? R1,#, 8#, E$'" #8 ,&&)#-(#, -&.$- T1$- N 8 !$" #' ")& #1'"? *)&,& ")& +$%& +)$-- @& ", &(@? 4 ,"1& #8 ") + !"6 $'($-- #")&, (1&)$--&'.&+ "# R1,#,+6 +)$-- @& $--#*&(6 $'? ") '. ") + 2,&+&'" !" !#'"$ '&("# ")& !#'",$,? '#"* ")N +"$'('.

IH" #G H3^ OD#3E 3 ' OD HD/3 . DG O6 @/ 3 ' M D/3 /2/ ') (7 277D#4D 3 ' OD 277 ZDG O6 /D2E # 3"23 3"D , I/ /E G '# 3 H OD ./ O 3"D C/ CD/ (I#36

&CD#HD .' /2#E O EE # .' +/ E #D/E! 3 ' OD 2G^ F2#HDG O6 '/GD/ .' /G DI3D#2#3

' (@& "&'$!"&(')$" '#,(&, "# (&8,$? ")& 92&'!& #8 ")& ,$'+% ++ #' #8 ")& 5, +#'&,+ "# +1!) $(># ' '. #1'"?6 #, "# ")& #1'"? #8 ' " $+ ")& $+& %$? @&6 "#.&")&, * ") ")& 92&'!&+ #8 ")& E "'&++&+ $'(#")&, '&!&++$,? 92&'!&+ *) !) %$? $""&'(+1!) , $- #, , $-+6 "+)$-- $'(%$? @& -$*81- 8#, ")& #,(&1N "&'$'" #, #")&,) && H#4& %#, #, H#4&, '#,+ #8 ' *)&' $'($+ 22- !$" #' %$? @& %$(& "#) % #, ")&% 8#, ")$" 51,2#+&6 "# #,(&, +1!) 1%#, 1' + #8 #'&?$+)& #, ")&? +)$-- ") ':'&!&++$,? "# @& 8,#% %& "# %& $(4$'!&(#1" #8 ")& #'+#- ($"&(1'(#8 ")& V' "&(D '.(#% $, + '. ' "# +1!) 5&,+#'+ $'(1'(&, +1!) &.1-$" #'+ $+)& #, ")&? +)$-- ") ':2,#2&,

$ B ʿ ʿ (2C UV

ʿ '(ʿ@&ʿ "ʿ 81,")&,ʿ&'$!"&(6ʿ)$"ʿ "ʿ !$+&ʿ $'?ʿ 5&,+#'ʿ +#ʿ ", &(ʿ &CD#HDEʿ .ʿ
"ʿ +1!)ʿ $(>#ʿ ' '.ʿ #1'"?6ʿ #,ʿ "ʿ ")&ʿ #1'"?ʿ #8ʿ ' " ʿ +)$--ʿ @&ʿ ")&'ʿ +D/E #Eʿ 2Dʿ
$'(ʿ ")&,&ʿ $!C1 ""&(6ʿ "ʿ +)$--ʿ $'(ʿ %$?ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ +$ (ʿ #,(ʿ
&1"&'$'"ʿ #,ʿ #")&,ʿ) &8ʿ H#4&,'#,ʿ #,ʿ H#4&,'#,+ʿ #8ʿ ʿ ʿ O6ʿ /Gʿ
%$''&,ʿ)&,& 'B@&8#,&ʿ %&'"#'&(6ʿ "#ʿ #,(&,ʿ "#ʿ @&ʿ 2$ (ʿ #1"ʿ #8ʿ +1!)ʿ &1&'$'"ʿ
#'+#- ($"&(ʿ 1'(ʿ $+ʿ $8#,&+$ (6ʿ 8#,ʿ & %@1,+&%&'"ʿ "#ʿ ")&ʿ 5&,Y#"ʿ +#ʿ
$!C1 ""&(6ʿ +1!)ʿ 1%ʿ $+ʿ +)$--ʿ $22&$,ʿ "#ʿ ")&ʿ R1(.&ʿ @?ʿ #,ʿ @&8#,&
*)#%ʿ +1!)ʿ 5&,+#"ʿ *$+ʿ +#ʿ $!C1 ""&(6ʿ !&," 8 &(ʿ 1'(&,ʿ ")&ʿ $'(ʿ #8ʿ
+1!)ʿ R1(.&6ʿ "#ʿ)$4&ʿ @&&'ʿ ")&ʿ 92&'!&ʿ 2,#2&,-?ʿ $'(ʿ '&!&++$, -?ʿ 'N
!1,,&(ʿ @?ʿ +1!)ʿ &%#4$-ʿ #8ʿ ")&ʿ , $-ʿ #8ʿ +1!)ʿ 5&,+#'6

<ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ ")&ʿ +$ (ʿ #,(ʿ &1"&'$'"ʿ &CD#HDEʿ .
#,ʿ #")&,ʿ) &8ʿ H#4&,'#,ʿ #,ʿ H#4&,'#,+ʿ #8ʿ ʿ +)$--6ʿ "ʿ %$''&,ʿ @ 3#DEEDEʿ 3ʿ
)&,& 'B@&8#,&ʿ %&'"#'&(6ʿ #,(&,ʿ "#ʿ @&ʿ 2$ (ʿ #1"ʿ #8ʿ +1!)ʿ #'+#- ($"&(ʿ
1'(ʿ $+ʿ $8#,&+$ (ʿ "#ʿ &4&,?ʿ +1!)ʿ 5, +#'&,6ʿ @&8#,&ʿ) +ʿ &%#4$-ʿ 8,#%ʿ 3%Dʿ /Gʿ
+1!)ʿ #1'"?ʿ 8,#%ʿ *)&'!&ʿ)&ʿ +)$--ʿ @&ʿ ,&%#4&(ʿ $+ʿ $8#,&+$ (6ʿ $ʿ 1%ʿ D13D#2#3!ʿ
'#"ʿ &9!&&('.ʿ *&'"?ʿ 5#1'(+ʿ "#ʿ &'$@-&ʿ +1!)ʿ 8&&'(&,ʿ "#ʿ (&8,$?ʿ ")&ʿ
)$,.&+ʿ $'(ʿ 92&'!&+ʿ #8ʿ ")&ʿ ""&'($'!&ʿ #8ʿ) +ʿ E "'&++&+ʿ 5,#4 (&(ʿ
$-*$?+6ʿ ")$"ʿ +1!)ʿ 1%ʿ +#ʿ $(4$'!&(ʿ @&8#,&ʿ ")&ʿ &%#4$-ʿ #8ʿ +1!)ʿ
5, +#'&,ʿ +)$--ʿ @&ʿ (&(1!"&(ʿ $'(ʿ $--#*&(ʿ 8#,ʿ "ʿ ")&ʿ 1%ʿ *) !)6ʿ "ʿ ")&
4&'"ʿ #8ʿ ")&ʿ !C1 ""$-ʿ #8ʿ +1!)ʿ 5, +#'&,6ʿ %$?ʿ @&!#%&ʿ 2$?$@-&ʿ 1'(&,ʿ
")&ʿ &," 8 !$"&ʿ #8ʿ ")&ʿ R1(.&ʿ @&8#,&ʿ *)#%ʿ +1!)ʿ 5, +#'&,ʿ %$?@&ʿ", &(6ʿ
$+ʿ)&,& 'B@&8#,&ʿ 2,#4 (&(

<ʿ '(ʿ @&ʿ "ʿ &'$!"&(ʿ)$"ʿ ")&ʿ) &8ʿ &!,&"$,?ʿ #8ʿ +1!)ʿ #,(ʿ" D.ʿ /
&1"&'$'"ʿ #,ʿ #")&,ʿ) &8ʿ H#4&,'#,ʿ #,ʿ H#4&,'#,+ʿ #8ʿ ʿ 8#,ʿ ")&ʿ #GD/ʿ DH/D^
%&ʿ @& '.6ʿ #,ʿ ")&ʿ V'(&,ʿ &!,&"$,?6ʿ +)$--ʿ 8,#%ʿ %&ʿ "#ʿ %&ʿ !&,N 32/63ʿ HD/3 .6
" 8?ʿ "#ʿ ")&ʿ &!,&"$,?ʿ #8ʿ ")&ʿ H,$'(ʿ R1,?ʿ #8ʿ ")&ʿ #1'"?6ʿ #1'"?ʿ #8ʿ 3"Dʿ 0 I#3
$ "?6ʿ #,ʿ #1'"?ʿ #8ʿ $ #*'ʿ *)&,& "ʿ +1!)ʿ 8&&'!&ʿ *$+ʿ !)$,.&(ʿ "#ʿ '.27ʿ B #D ʿ
)$4&ʿ @&&'ʿ !#%% ""&(ʿ ")&ʿ %#1'"ʿ #8ʿ ")&ʿ #'&?ʿ *) !)ʿ +)$--ʿ)$4&ʿ 2GF2'HDG
@&&'ʿ +#ʿ 8,#%ʿ %&ʿ "#ʿ %&ʿ $(4$'!&(ʿ 1'(&,ʿ 1")#, "?ʿ #8ʿ ") +ʿ !"ʿ I#GD/ʿ 3"Eʿ
8#,ʿ $'?ʿ #8ʿ ")&ʿ 51,2#+&+ʿ $8#,&+$ (ʿ $'(ʿ &4&,?ʿ +1!)ʿ &," 8 !$"&ʿ +)$--ʿ H3!ʿ 2#Gʿ 2
@&ʿ -$ (ʿ @&8#,&ʿ +1!)ʿ H,$'(ʿ R1,?ʿ $"ʿ ")&ʿ '&9"ʿ ++ L&+ʿ $'(ʿ ")&,&N B D36ʿ 3ʿ ODʿ
12#"ʿ "ʿ +)$--ʿ $'(ʿ %$?ʿ @&ʿ -$*81-ʿ 8#,ʿ +1!)ʿ H,$'(ʿ R1,?6ʿ $'(ʿ $'?ʿ C/DED#3DGʿ O6ʿ
$'(ʿ &4&,?ʿ +1!)ʿ H,$'(ʿ R1,?ʿ +ʿ)&,&@?ʿ ,&C1 ,&(6ʿ "#ʿ %$:&ʿ 5,&+&'"N 3"Dʿ /2#Gʿ
%&'"ʿ #8ʿ $ # &"?ʿ #8ʿ ")&ʿ %#1'"ʿ #8ʿ ")&ʿ #'&?ʿ +#ʿ $(4$'!&(6ʿ $+ʿ ,1/6!ʿ 2#Gʿ
+"$"&(ʿ "ʿ +1!)ʿ &," 8 !$"&6ʿ "#ʿ @&ʿ ,$ +&(ʿ #88ʿ +1!)ʿ #1'"?ʿ $"ʿ -$,.&6ʿ #,ʿ /2]DGʿ ..ʿ 3"Dʿ
$,#'?6ʿ #,ʿ 5$, +)ʿ *)&,&ʿ +1!)ʿ 8&&'!&ʿ +)$--ʿ)$4&ʿ @&&'ʿ !)$,.&(ʿ "#ʿ (I#36ʿ /
)$4&ʿ @&&'ʿ !#%% ""&(ʿ $'(ʿ "ʿ +)$--ʿ '#"ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ #1,"ʿ $"ʿ 2/ #6ʿ /
$'?ʿ +1!)ʿ ++ L&+ʿ "#ʿ 8 $"ʿ $'?ʿ 5,&+&'"%&'"ʿ 8#,ʿ $'?ʿ #")&,ʿ #'&?ʿ 1'"- +2/ E"ʿ #
+1!)ʿ 5,&+&'"%&'"ʿ 8#,ʿ +1!)ʿ # &"?ʿ @&ʿ 8 ,+"ʿ %$(&ʿ $'(ʿ $--#*&(ʿ $'(ʿ Z" H"ʿ 3"Dʿ
*)&'ʿ $'(ʿ +#ʿ +##'ʿ $+ʿ ")&ʿ 1%ʿ +#ʿ "#ʿ @&ʿ 2,&+&'"&(ʿ $+ʿ $8#,&+$ (ʿ +)$--ʿ '..D#HDʿ Z2Eʿ
@&ʿ ,$ +&(ʿ $'(ʿ ,&!& 4&(ʿ @?ʿ ")&ʿ ,&$+1,&,ʿ #8ʿ +1!)ʿ #1'"?ʿ)&ʿ +)$--ʿ 2$?ʿ H"2/4DGʿ 3ʿ
")&ʿ +$%&ʿ "#ʿ ")&ʿ #--&!"#,ʿ #8ʿ 9!+&ʿ 8#,ʿ ")&ʿ 3 +", !"6ʿ "#ʿ @&ʿ @?ʿ +1!)ʿ "2FDʿ ODD#
#--&!"#,ʿ $!!#1'"&(ʿ 8#,ʿ $+ʿ #")&,ʿ 21@- !ʿ #' &+ʿ *) !)ʿ %$?ʿ !#%&ʿ "#ʿ (O O 33DG
) +ʿ $'(+

ʿ 5,#4 (&(ʿ $-*$?+6ʿ $'(ʿ ODʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ ") +ʿ !"ʿ *1/23 # .ʿ
+)$--ʿ ODʿ $'(ʿ !#'"'1&ʿ "ʿ 8#,!&ʿ 1'"-ʿ ")&ʿ ,+"ʿ 3$?ʿ #8ʿ ʿ '&ʿ H3ʿ
")#1+$'(ʿ& .)"ʿ)1'(,&(ʿ $'(ʿ") ,"?B8#1,

<ʿ '(

UVT ; & , B (2C

H3 O26 @& < '(2,#4 (&($-+#6 $'(@& " 81,")&, &'$!"&( )$"") + !"
2OD#GDG %$? @& $%&'(&(6 $-"&,&(6 #, ,&2&$-&(@? $'? !" #, !"+ "# @&
2$++&((1, '. ")& 2,&+&'" &++ #' #8 5$,- $%&'"

3] 5, '"&(@? $'(;
5, '"&,+ "# ")& D '.;+ %#+" 9!&--&'" $>&+"?
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' ' Z' T V

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(+ '

H3' /D\ I / #4' 3"D' ##I2' 323D OD#3E' .' / IE^
3DDE' /' (O O EE #D/E' .' I/#C]D' = 2GE' 3 ' OD'
3/2#E O 33DG' 3 ' 3"D' DH/D32/6' .' 323D!' 2#G' 2.3D/%'
Z2/GE' 72 G' OD. /D' +2/7 2 OD#3

[Q3"' % ' Q S
F

@ ' $ ' ' ! " ' * $+' 2$++&(' ' ' ")&') ,(' &$,' #8' ")&'
& . ' ' #8' +' -$"&' $>&+"?6' ' " "1-&(' ' ' ' * ' H Q' ! -/ '
' ' $ ' $' ' " ' ' '5 + '
' ' > ' #8'H,&$"' , "$ ' ' ' ' . -$' (6' @?' *) !)' "' *$+'
& ' $!"&(6' ")$"' $--' ,1+"&&+' $ ' (' #%% ++ # ' &,+' #8' &4&,?' 1, ' 2 : &'
#$(' #,' #$(+' +)#1-(')#-(' $' H& ' &,$-' &&" ' .' #8' ")&' ,1+"' 8#,'
*) !)' ")&?' +)#1-(' ,&+2&!" 4&-?' $!"' # ' ' $' 3$?' "#' @&' $22# ' "&(' ' ' ")&'
' ")+' #8' * " ' #,' ! " ' ' ' &4&,?' &$,6' *) !)' +$ ('
&&" ' .' +)#1-(' @&' !$--&(' #,' : ' # * ' ' $+' \')&' H& ' &,$-' ' ' 1$-'
&&" ' .' #8' ")&' ,1+"&&+' #,' #%% ++ # ' &,+6^' $ ' (' $"' +1!)' &&" ' .'
")&' ,1+"&&+' #,' #%% ++ # ' &,+' $++&%@-&(' +)#1-(' &-&!"' $')$,%$ ' '
8#,' ")&' 51,2#+&+' ")&,&#86' $ ' (' +)#1-(' $-+#' $1 (' ' ")&' +&4&,$-' ! ! #1 ' "+'
#8' ")&' +$ (' ,1+"+6' $ ' (' ,&2#,"' ")&' "$"&' #8' ")&' #$(+' 1 ' (&,' ")& ,'
$,&' $ ' (' 12&, ' "&' (&' !&6' $ ' (6' $+' +## ' ' $+' +1!)' ! ! #1 ' "+' +)#1-(' @&'
$--#*&(' $ ' (' + . ' &(6' ")&' -&, :' "#' ")&' ,1+"&&+' #,' #%% ++ # ' &,+'
)#-(' .' +1!)' &&" ' .' +)#1-(' 8#,") * ")' %$: &' #1"' $' "$"&%& ' "' #8'
")&' 3&@"+6' &4& ' 1&+6' $ ' (' 92& ' ("1,&' ,&!& 4&(' #,' ' ! 1, ,&(' #"'
$! ! #1 ' "' #8' ")&' ,1+"' 8#,' *) !)' ")&' &&" ' .' +)#1-(' @&')&-(6' ' ' ")&'
#,%' ! # ' "$ ' &(' ' ' ")&' !)&(1-&' $ ' ' &9&(' "#' ")&' +$ (' ! "6' *) !)'
+$ (' "$"&%& ' "' +)#1-(' @&' +1@% ""&(' "#' ")&' ,1+"&&+' #,' #%% ++ # ' &,+'
/' ' $++&%@-&

$++&%@-&(' $"' +1!)' &&" ' .6' $""(' *)&'' $22,#4&(' @?' ")&' $>#, "?' #8'
")&%' +)#1-(' @&' + . '&(' @?' ")&')$,%$'' #8' ")&' +$ (' &&" ' .6' $'('
+)#1-(' * ") '') ,"?' 3$?+' ")&,&$8"&,' @&' ",$'+% ""&(' "#' ")&' -&,:' #8'
")&' 5&$!&' #8' ")&' #1'"?' '' *) !)' ")&' #$(' #,' ")&' %$>#,' 5$,"'
")&,&#8'"#' *) !)' ")&' +$ (' "$"&%&'"' ,&-$"&(' +)#1-(' - &' $'(' "' *$+'
81,")&,'&'$!"&(6' ")$"' #"' +1!)' "$"&%&'"' @& ' .' ,&!& 4&(' @?' ")&' +$ ('
-&,:' #8' ")&' 5&$!&')&' +)#1-(' 2,#(1!&' ")&' +$%&' "#' ")&' R1+" !&+'
$++&%@-&(' $"' ")&' T1$,"&,' &++ #'+' "#' @&')&-(' '&9"' $8"&,' ")&' &!& 2"'
")&,&#86' $'(' ")$"' +1!)' "$"&%&'"' +)#1-(' $-+#' @&' ,&. +"&,&(' $'(' :&2"'
$%#' .+"' ")&' &!#,(+' #8'")&' T1$,"&,' &++ #'+' #8'")&' #1'"?' 8#,' *) !)'
+1!)' -&,:' #8' ")&' 5&$!&' +)#1-(' $!"]' '(' *)&,&$+' $'#")&,' !"' *$+'
2$++&(' '' ")&' #1,")' &$,' #8' ")&' & .'' #8' +' +$ (' -$"&' $>&+"?6'
QH Q6' IO '" "1-&(' & ' ' ' 8 ' ' ' ' ' ' ' ' 5 '
6 ' ' ' ' ') ' ' B ' ' * ' ' '
$ ' $' ' " ' ' ' 5 + ' ' ' ' > ' '
H,&$" , "$ '' ' ' .-$'(6' @?' *) !)' "' *$+' &'$!"&(6' ")$"' *)&,&' @?'
$'?' !"' #8' 5$,- $%&'"' $' H&'&,$-' ''1$-' &&" ' .' #8' ")&' ,1+"&&+'
$!" ' .' '' &9&!1" #'' #8' +1!)' !"' +)#1-(' @&' $22# '"&(' "#' @&')&-(' $"'
$'?' #")&,' %&' #8' ")&' &$,' ")$'' '' ")&' +$ (' #'")+' #8' '
*" ' #,' ! " ' $'('"@&' +$ (' ,1+"&&+' +)#1-(')$4&')&-(' +1!)'
&&" ' .+' 1'(&,' ")&' 1")#, "?' #8' +1!)' !"6' "' +)#1-(' @&' -$*81-' 8#,'
+1!)' ,1+"&&+' "#' !#'" '1&' " ')#-(' ")&' +$ ('H&'&,$-' ''1$-' &&" ' .+'
$"' ")&' %&' %&'"#'&(' $'(' (,&!"&(' '' ")&' !"' @?' 4 ,"1&' #8' *) !)'
")&?' +)#1-(' @&' $22# '"&(6' '+"&$(' #8' '' ")&' +$ (' #'")+' #8' '
*" ' #,' ! " ' $'?"') ' .' '' ")&' +$ (' 8 ,+"B,&! "&(' !"' !#'"$ '&('
"#' ")&' !#'",$,?' '#"* ")+"$'(' .' ' '(' *)&,&$+' "' +' &92&(&'" ")$"'
+1!)' ''1$-' "$"&%&'"+' +)#1-(' @&' ",$'+% ""&(' "#' '&' #8' +' $B'
>&+"?;+' 5, '! 2$-' &!,&"$, &+' #8' "$"&6' 8#,' ")&' 51,2#+&' #8' @& ' .' ,&4 +&(6'
$'(' $8"&, *$,(+' -$ (' @&8#,&' @#")' #1+&+' #8' 5$,- $%&'"' $'(' 8#,' ")&'
+$:&' #8' #'&' 1' 8#,%' ?+"&%' "' +' $-+#' &92&(&'" ")$"' 5,#4 + #'+'
+)#1-(' @&' %$(&' '' ,&+2&!"' "#' ")&' %&' 8#,' @#-(' .' +1!)' H&'&,$-'
''1$-' &&" ' .+']' &' " ")&,&8#,&' &'$!"&(' @?' ")&' D ' .;+' %#+"'
9!&--&'" $>&+"?6' @?' $'(' * ")' ")&' (4 !&' $'(' #'+&'" #8' ")&'
#,(+' 2 , "1$-' $'(' &%2#,$-6' $'(' #%%#'+6' '' ") +' 2,&+&'" 5$,N

- $%&'" $++&%@-&(6' $'(' @?' "'&' 1")#, "?' #8' ")&' +$%&')$"' ")&'
+&4&,$-' $'(' ,&+2&!" 4&' -&,:+' "#' ")&' +$ (' ,1+"&&+' #,' #%% ++ #'&,+'
)#-(' .' +1!)' ''1$-' &&" ' .+' ,&+2&!" 4&-?' $+' $8#,&+$ (' +)$--' * ") ''
) ,"?' 3$?+' 8,#%' ")&' 2$++ ' .' #8' ") +' !"' ",$'+% "' "#' '&' #8' +'
$>&+"?;+' 5, '! 2$-' &!,&"$, &+' #8' "$"&' 8#,' ")&' %&' @& ' .' #2 &+'
#8' $--' +1!)' ''1$-' "$"&%&'"+' +#' $-,&$(?' +&'" @?' ")&%' ,&+2&!" 4&-?'
"#' ")&' -&,:+' #8' ")&' 5&$!&' $+' $8#,&+$ (6' $'(' +)$--' $-+#' ",$'+% "' "#'
'&' #8' +' $>&+"?;+' 5, '! 2$-' &!,&"$, &+' #8' "$"&' ' ' %&'
@& ' .' #2 &+' #8' $--' +1!)' H&'&,$-' ''1$-' "$"&%&'"+' 8#,' $'?' 81"1,&'
&$,' #,' &$,+' +#' (,&!"&(' "#' @&' ",$'+% ""&(' "#' ")&' -&,:+' #8' ")&'
5&$!&' $+' $8#,&+$ (' * ") '') ,"?' 3$?+' $8"&,' ")&' +$%&' +)$--')$4&' @&&''
+#' $22,#4&(' $'(' + .'&(' $+' $8#,&+$ (' $'(' 8' $'?' +1!)' -&,:' "#' ")&'
+$ (' ,1+"&&+' #,' #%% ++ #'&,+' +)$--' ,&81+&' #,' '&.-&!"' "#' ",$'+% "'
+1!)' #2 &+' #8' +1!)' ''1$-' "$"&%&'"+' * ") '' ")&' %&')&,&' 'N
@&8#,&' 2,&+!, @&(' 8#,' ")$"' 51,2#+&6' ")&' $'(' '' &4&,?' +1!)' $+&' &4&,?'
+1!)' -&,:' +#' #88&'(' .' +)$--' 8#,' &4&,?' +1!)' 88&'!&' 8#,8&' "' $'?' 1%'
'#"' &9!&&(' .' &'' 5#1'(+' ' , -&++' ")$'' 4&' 5#1'(+6' $"' ")&' 3 +N
!,&" #'' #8' $'?' R1+" !&' #,' R1+" !&+' #8' ")&' 5&$!&' @&8#,&' *)#%' #%2-$ ''
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$ ' $ B ' ' (2C'QU UV

' '(' @&' " 81,")&,' &'$!"&(6')$" 8,#%' $'(' $8"&,' ")&' 92 ,$B' H&'&,$-'
"#'' #8' ")&' 2,&+&'" &$,' ")&' ,1+"&&+' $'(' #%% ++ #'&,+' #8' &4&,?' ''1$-'
1,'2 :&' #$(' +)$--')#-(' ")&,' H&'&,$-' ''1$-' &&" '.' #'' #,
@&8#,&' ")&' *&'"?B8 8")' 3$?' #8' ' '' &4&,?' 81"1,&' &$,6' $'(' '#" j,' OD. /D' 3"D'
$" $'?' #")&,' %&6' $'?' ") '.' '' ")&' +$ (' ,&! "&(' !"+6' #,' '' & ")&,' V3"' B2/H"f
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' '(' @&' " 81,")&,' &'$!"&(')$" ")&' ''1$-' "$"&%&'" #8' ")&' =D41723 #4'
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+$ (' ,&C1 ,&(' @?' ")&' +$ (' ,&! "&(' !" #8' ")&'),(' &$,' #8' ")&' & .'' ''1$-'
#8' +' +$ ('-$"&' $>&+"?6' $'(' $-+#' @?' ") +' !"6' "#' @&' %$(&' #1" @?' ")&' +$"&88 &'" #8'
-&,:' $'(' 1,4&?#,' "#' ")&' ,1+"&&+' #,' #%% ++ #'&,+')#-('.' +1!)' 3&@"+6' H'
H&'&,$-' ''1$-' &&" '.6' $'(' +1@% ""&(' "#' ")&' ,1+"&&+' #,' #%N
% ++ #'&,+' ")&'' $++&%@-&(6' +)$--6' 8#,' ")&' &$,' '&' ")#1+$'(' & .)"
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''1$-' "$"&%&'" #8' ")&' &$,' '&' ")#1+$'(' & .)")1'(,&(' $'('
") ,"?B"),&&' 1'" -' ")&') ,"?B8 ,+" 3$?' #8' ' *" ' '&' ")#1+$'(' & .)"
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(1-&' X [' $''&9&(' "#' ") +' !" ' $'(' ")$" '' $--' 81"1,&' &$,+' +1!)'
''1$-' "$"&%&'" +' +)$--' @&' %$(&' #1" #8' ")&' 3&@"+6' &4&'1&+6' $'('
92&'("1,&+' ,&!& 4&(' #,' '!1,,&(' #'' $!!#1'" #8")&' ,1+" 8#,' *) !)'
")&' &&" '.' +)$--' @&')&-(' @&"*&&' ")&' ,+" 3$?' #8' & ' $'(' ")&'
) ,"?B8 ,+" 3$?' #8' ' *" ' #8")&' &$,' 2,&!&('.' ")&' &$,' '*) !)'
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-&,:+' "#' ")&' +$ (' ,1+"&&+' #,' #%% ++ #'&,+' +)$--' !$1+&' "#' @&' 2,&B' C2/D E3 '
2$,&(' $'(' -$ (' @&8#,&' +1!)' H&'&,$-' ''1$-' &&" '.+' #8' ")&' ,1+"&&+' O23DE' . /'
$'(' #%% ++ #'&,+' ,&+2&!" 4&-?' +" %$"&+6' %$(&' #1" '6' ")&' #,%' ''1$-
!#'"$ '&(' '' ")&' !)&(1-&' X [' "#' ") +' !" $''&9&(6' #8' ")&' 2,#@$@-&' B DD3 #4E
92&'("1,&' #8' ")&' ,&+2&!" 4&' ,1+"+' 8#,' ")&' !1,,&'8' &$,6' 8,#%'
")&' ,+" 3$?' #8' & ' 2,&!&('.' +1!)' &&" '.' "#' ")27') ,"?O8 ,+"
3$?' #8' ' *" ' 8#--#* '.' $'(' 8' $'?' +1!)' -&,:' +)$--' ,&81+&' #,'
'&.-&!" "#' 2,&2$,&' $'(' -$?' @&8#,&' +1!)' H&'&,$-' ''1$-' &&" '.' +1!)'
+" %$"&' $+' $8#,&+$ (6' &4&,?' +1!)' -&,:' +#' #88&'('.' +)$--' 8#,' &4&,?'
+1!)' 88&'!&' 8#,8&" $'?' 1%' '#" &9!&&('.' &' 5#1'(+' '#,' -&++'
")$'' 4&' 5#1'(+6' $" ")&' 3 +!,&" #'' #8' $'?' R1+" !&' #,' R1+" !&+' #8' ")&'
5&$!&' @&8#,&' *)#%' #%2-$'" #8' +1!)' 88&'!&' +)$--' @&' %$(&

<' '(' @&' " 81,")&,' &'$!"&(')$" +1!)' &!,&"$,?' #8' "$"&' 8#,' DH/D32/6' .'
")&' %&' @&'.' +)$--' ?&$,-?' $'(' &4&,?' &$,' !$1+&' +1!)' ''1$-' 323D' 3 '
"$"&%&'" +' +#' ",$'+%' ""&(' "#') %' "#' @&' ,&4 +&(' $'(' $@+",$!"&(6' ("" H21ED' O^
+)$--' !$1+&' +1!)' @+",$!"+' "#' @&' -$ (' @&8#,&' @#")' #1+&+' #8' 5$,- $N E3/2H3E' .' #^
%&'"6' "#.&")&,' *' ")' $'?' @+&,4$" #'+')&' %$?' ") '.' 2,#2&,' *' ")' #127' 323D^
,&+2&!" "#' ")&' "$"&6' #'("#'6' $'(' &2$,' #8' ")&' #$(+' #,' $'?' #8' OD#3E' 3 ' OD'
")&%6' #,' *' ")' ,&+2&!" "#' ")&' 3&@"+6' &4&'1&+6' 92&'("1,&6' $'(' 72 MS' OD. /D'
$'$.&%&'" #8' $'?' #8' +1!)' 1,'2 :&' ,1+"+ +2/7 2 0 D#3N

<' '(' @&' " 81,")&,' &'$!"&(')$" "#' &'$@-&' +1!)' &!,&"$,?' 2#'. /'3"23'
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"#' %$:&' +1!)' @+",$!"6' $'(' 2,&2$,&' +1!)' &2#," $'(' @+&,4$" #'+' EIOO #2#6'
8#,' @#")' #1+&+' #8' 5$,- $%&'"6' " +)$--' @&' -$*81-' 8#,' +1!)' &!,&"$,?' (7D/]E!' I/^
#8' "$"&' 8#,' ")&' %&' @&'.' "#' 'C1 ,&' '"#' ")&' "$"&' #8' ")&' +&<&,7 FD6 /E!' H'
@7&,&' @%6'
I/#C]D 2#G' #\I /D

#3 ˢ3"D 323D .ˢ3"D = 2GE #G 3"D B D37 H7 .ˢ # I I32 # #4 37 #

1,'2 :& ,1+"+ *)#+& ' -1$- "$"&%&'"+ +)$-- @& +# $+7 $8#,&+$ (",$'+% ""&(6 $'($+!&,"$ ' ")& %#1'" #8 ")& ''1$- '!#%& $'(92&'("1,& #8 +1!) +&4&,$- ,1+"+6 $'($-+# "# 'C1 ,& '"# ")& &")#(' *) !) ")& #$(+ 1'(&, ")&)$,.& #8 +1!) ,1+"+ $,& %$ '"$ '&($'(,&2$,&($'(8#, ")& 51,2#+&+ $8C,&+$ (" +)$-- @& -$*81- 8#, +1!) &!,&"$,? #8 "$"& 8#, ")& %& @& '. "# +1%%#" @&8#,&) % $'? 1,4&?#,+6 ,&$+1,&,+6 -&,:+6 #, #")&, 88 !&,+ &%N 2-#?&(@? ")& ,1+"&&+ #, #%% ++ #'&,+ ' ,&+2&!" #8 ")& +$ (#$(+ $'(")& +$ (1,4&?#,+6 ,&$+1,&,+6 -&,:+6 $'(@")&, 88 !&,+ +)$--6 8 ,&C1 ,&(6 2,#(1!& $-- ##:+ #8 !!#1'"6 5R$' 6 $2+6 5$2&,+6 3#!1%&'"+6 $'(E, " '.+ ' ")&, 5#++&++ #' ,&+2&!N " 4&-?6 $'(+)$-- 2&,% " $'? 5&,+#' $22# '"&(@? +1!) &!,&"$,? #8 "$"& 8#, ")& %& @& '. "# '+2&!"6 &9$% '&6 $'("$:& #2 &+ #, 9",$!"+ 8,#% ")& +$%& #, $'? #, & ")&, #8 ")&% > $'(8 $'? +1!) 1,9&?#,6 ,&$+1,&,6 -&,:6 #, #")&, 88 !&,+)$-- ,&81+& #, '&.-&!" "# $""&'($'? +1!) 1%%#'+6 #, ,&81+& #, '&.-&!" "# . 4& $ 81-- $'(+$" +8$!"#,? '+*&, "# $'? T1&+" #' *) !))& +)$-- @& @? +1!) &!,&"$,? #8 "$"& 8#, ")& %& @& '. ,&C1 ,&("# $'+*&,6 #, +)$-- ,&81+& #, '&.-&!" "# 2,#(1!& $'? ##:+ #8 !!#1'"6 5-$'6 $26 5$2&,6 3#!1%&'"6 #, E, " '. ') + 2#++&++ #' ,&-$" '. "# ")& #$JR $+ "# *) !))& +)$-- @& &%2-#?&(6 &4&,? 5&,+#' +# #88&'('. +)$-- 8#, &4&,? +1!) 88&'!& 8#,8& " $'? 1% '#" &9!&&('. *&'"? 5#1'(+ '#, -&++ ")$' 4& 5#1'(+6 $" ")& 3 +!,&"#' #8 $'? R1+" !& #, R1+N " !&+ #8 ")& 5&$!& @&8#,& *)#% #%2-$ '" #8 +1!) 88&'!& +)$-- @& %$(&

é7D/]E 3 /I>7DDE 3 >I#H (C DE .=DE 7I^ 3 #E . /IE^ 3DDE 2E 3 M(#3#I23 # / 73D/23 # . I/#C]D H3E! H 3 DH/D32/6 . 323D

< '(@& "&'$!"&(6)$" *)&' $'(+# +# $+ ")& ,1+"&&+ #8 $'? 1,'2 :& #$(+)$--)$4& &'"&,&('"#'$ &+#-1" #' "# $22-? "# 5$,- $%&'" 8#, ")& #'" '1$" #' #8 ")& &,% $'(5#*&,+ #8 ")& !" 1'(&, *) !) +1!) 1,'2 :& #$(+ ,&.1-$"&(6 #, 8#, ")& -"&,$" #' #, +#+ ',$ # ,(&$ &'. $(' ,$*&$,")& #$ ' +)& #8 $'? #8 ")& #--+ "# @& -&4 &(#' +1!) 1,'2 :& #$(6 ")& -&,: #8 ")& +$ (,1+"&&+ +)&,&@? ,&C1 ,&(%%&($"&-? "# #2? #8 +1!) &+#-1" #' "# '& #8 + $>&+"?;+ 5, '! 2$- &!,&"$, &+ #8 "$"& 8#, ")& %& @& '.6 "#.&")&, * ")$ #2? #8 $'? +2&! $- -$1+&+ *) !) ")& ,1+"&&+ %$? *+)$ "# @& +&,"&(' ")& &$! ,&+2&!" '. +1!) 1,'2 :& #$(6 $'(($-+# $ "$"&%&'" #8 ")& '!,&$+&(#--+ '"&'(&("# @& -&4 &(")&,&#'

aD#I73 DE Z 3 OD /DH FD/DG

< '(@& "&'$!"&( )$" ")& 5&'$-" &+)&,&@? %2#+&(+)$-- @& ,&!#4&,&($'($22- &(")& +$%& $'' &, $+ 5&'$-" &+ %2#+&(@? ")& +$ (&!"6 ,&! "&($' "# @& ,&!#4&,&($>&+"?6 $'(")& +&4&,$- -$1+&+ $'(5,#4 + #'+ ")&,& !#'"$ '&(,&+2&!" '. ")& &!#4&,? #8 5&'$-" &+ +)$-- @& 8#,!& @-& $'(&88&!"1$- '51,N 2#+& $+ 8 ")& +$%& *&,&)&,& +2&! $--? ,&B&'$!"&($'(!#'"$ '&(

H3 O26 OD 273D/DG 3" E DEE #

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O/ I4"3 . /Z2/G ,

=DFD#ID /DHD FDG ./ O 77E

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323I3D *I36 ! ,

E3 O23DG 27ID . 323I3D *I36
CD/. /ODG <

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3"D DHI/36 .3"D, 77E ! ,

272#HD GID 3 3"D /IE3

+) * =

272#HD GID 3 3"D /D2EI/D/;P
O/ I4"3 . /Z2/G ,

B2#I27 2O I/

D2O 2O I/ 2#G (2// 24D B2
3D/ 27E

B23D/ 27E . / I/.2HD =DC2 /E

I#G CI/H"2EDG 4

*2O24D G #D # O32 # #4 B2 P
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/2GDEOD#aE 77E !

272/ DEW /D2EI/D/

(7D/]

j ! I/FD6 /

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#3D/DE3 .*DO3

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#H GD#327 &CD#HDE

323I3D *I36 CD/. /ODG DE3 O23DG
27ID ,

272#HD GID 3 /D2EI/D/

* $"& #8 '"&,&+" 2&, &'" == = 'A) (' B

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#GDG / B /3424D *DO3

A7 23 #4 * 33

#C2 G #3D/DE3

272#HD GID3 3"D /D2EI/D/

327 *DO3E

//D2/E . 77E . /
HI//D#3 -D2/ ,
//D2/E .+2/ E"(O P
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//D2/E . 2#6 3"D/
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327 //D2/E

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3 V ˢ X [

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X ˢ ˢ

B2#I2 7ˢ 20 I /ˢ ˢ ˢ 1

D2 0ˢ 20 I /ˢ 2#Gˢ (2/ / 24Dˢ Kˢ ˢ ˢ %

B 23D/ 27Eˢ GD7 FD/DGˢ #ˢ 3"Dˢ = 2G!ˢ D&G#k FDˢ .ˢ (2/ / 24D

2#Gˢ C I /H"2EDGˢ %

* 2 0 24Dˢ G #Dˢ # O32 # #4ˢ B 23D/ 27 ˢ Hˢ ˢ

/2GDE O D#aEˢ 77Eˢ ˢ ˢ

272/ DEˢ ˢ ˢ ˢ ˢ ˢ 1

2Zˢ ("2/4DEˢ ˢ ˢ

#3D/DE3ˢ .ˢ * DO3ˢ 9ˢ ˢ ˢ

@23D/ #4ˢ 3"Dˢ = 2GEˢ ˢ 9

4"3 #4ˢ * 33 ˢ ˢ 1ˢ ˢ ˢ Cˢ

#H GD#327ˢ &CD#HDEˢ ˢ

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* 23Dˢ .ˢ3"Dˢ D& E3 #4ˢ H3ˢ .ˢ+2/7 2 0 D#3!

"Dˢ D#43"ˢ .ˢ3"Dˢ 3 I E3!ˢ B 7DE ˢ + ˢ - ˢ (ˢ ˢ) [

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H3 3 ' 2I3" / dD 3"D CC7 H23 # .' +2/3 . ' 3"D 2#G =DFD#ID . ' 3"D (/ Z# . / C/ FG#4 A&^ 3I/DE! AI/#3I/D! A 33 #4E! 2#G *DH /23 #E . /

7 (' ' [Q3"' % ' Q _

E ' @?' $' ' !" 2$++&(' ' ' ")&' &'")' &$,' #8' ")& & . ' ' #8' +' -$"&' $>&+"?' D ' . ' ' ")&' #1,")6' '" N "1-&(' ' ' ' ' ' * ' ' $ ' ' ' - H'Q' ! +# ' * ' ' * * ' ') ' B # ' / ' 1 > + ' ' '-' ' ' ' ' ' ' $ ' $ ' ' ' ' ' .8 7 ' ' '. -$'(' ' ' ' ' ' ' ' $ ' ' ,&-$'(' ' ' 8 ' ' > ' ' U ' * ' ' ' ' ' $'' ' -(&, '&?6' " *$+' &'$!"&(6' ")$" $--' ")&' $'(' &4&'1&+' *)$"+#&4&,' X (4#*+#'+' #8')1,!)&+' $'(' < !$,N $.&+' #'-?' &9!&2"&([' *) !)' @&-#'.&(' "#' +' $>&+"?' * ") '' ")&' ,(&, ' .' #,' 1,4&?' #8' ")&' #1," #8' 9!)&C1&,' '' . ' #,' / ' '' ' ' ' ")&' ' ' ' $'(' "+' 3&2&'(&'! &+6' $'(' ")&' ' 7 ' ' +)#1-(' @&' 1'(&,' ")&' $'$.&%&'" #8' ")&' #%% ++ #'&,+' #8' +' $>&+"?;+' E##(+6' #,&+"+6' $'(' $'(' &4&'1&+6' $'(' #8' ")&,' 1!!&++#,+' $'(' " *$+' ")&,&@?' 81,")&,' &'$!"&(6' ")$" ")&' $''1$-' '!#%&' #8' $--' ")&' +$ (' 5#++&++ #'+' $'(' $'(' &4&'1&+' #8' ")&' ,#* '' "#' *) !)' ")$" !" ,&-$"&(6' '!-1(' .' '&+' #' ' &$+&+6' $'(' $--' #")&,' 1%+' ,&!& 4&(' '' ,&+2&!" #8' +1!)' &$+&+6' #,' #")&, * +&' 8#,' #,' '' ,&+2&!" #8' ")&' +$ (' 5#++&++ #'+' $'(' $'(' &4&'1&+' X&9!&2" 8,#%' $-&+' ,' 9!)$'.&+[6' +)#1-(' @&' $22- &(' '' %$''&,' 8#--#* ' . ' ")$" +' "#' +$?6 #

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'1&+ ' " ")&' '&9" 2-$!&6 '' ")&' 5$?%&'" $'(6 3 +!)$,.&' #8 $'?
$''1$- 1%#,' 1%+ #8 #'&?6 #,'$'? 5&'+ #'+6 ")&'' $-,&$(?!)$,.&('
#,' "# @&' !)$,.&(' ")&,&#'' ,&?_&!" 4&-?6 $'(' '' ")&' 5$?%&'" #8 $'?
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31" &+' +)$--' ' $--' ,&+2&!"+' @&' #8' ")&' +$%&' #,!&' $'(' 88&!" $+' 8")&'
+$%&')$(' @&&' (#'&' @?' ")&' +$ (' D&&2&,' #,' -&,:' #8' ")&' $'$2&,' '
$'(")$" ")&,&' +)$--' @&' 2$ (' "#' ")&' +$ (' -&,:' #8' ")&' ,#* ' 8#,' ")&'
+$ (' 31" &+' #8' D&&2&,' #,' -&,:' #8' ")&' $'$2&,' ")&' ?&$,-?' $-$,?' #8'
*#')1'(,&(' 5#1'(+] 5,#4 (&('$-*$?+6' ")$" 8")&' +$ (' 88 !&' #8' ")&'
'#*' D&&2&,' #,' -&,:' #8' ")&' $'$2&,' +)$--' @&!#%&' 4$!$'" @&8#,&' $'?7
<$!$'!?' +)$--' #!!1,' ' ")&' 88 !&' #8' ")&' '#*' -&,:' #8' ")&' ,#*'6
")$" ")&' $'(' +1!)' $+&' #'-?' ")&' 31" &+' #8' ")&' +$ (' 88 !&' #8'
D&&2&,' #,' -&,:' #8' ")&' $'$2&,' +)$--' @&' 2&,8#,%&(' @?' ")&' 3&21"?'
#8' ")&' '#*' -&,:' #8' ")&' ,#* '6' 1" -' $' <$!$'!?' +)$--' #!!1,' ' ")&=
88 !&' #8' ")&' +$ (' '#*' -&,:' #8' ")&' ,#* '6' ' ")&' +$%&' $''&,' $+' 8'
+1!)' 3&21"?' *&,&' -&,:' #8' ")&' ,#* ' $22# '"&(' @?' 4 ,"1&' #8' ") +'
!"6' $'(")$" ")&,&' +)$--' @&' 2$ (' "#' +1!)' 3&21"?' 8#,' ")&' +$ (' 31" &+'
#8' D&&2&,' #,' -&,:' #8' ")&' $'$2&,' ")&' $8#,&+$ (' ?&$,-?' $-$,?' #8'
*#')1'(,&(' 5#1'(+

<' '(' @&' " 81,")&,' &'$!"&(')$" ")&' +$ (' +&4&,$-' $-$,' &+' +)$--' 272/ DE' 3 ' OD'
@&' "$:&' ' 81--' $" +8$!" #" 8#,' ")&' 31" &+' #8' ")&' +$ (' 88 !&+' ,&+2&!B' 23 E'
" 4&-?6' $'(' #8' $--' 92&'!&+' '! (&'" "#' ")&' 5&,8#,%$'!&' ")&,&#8-' K 8$!" #" #8
<' '(* I3 DE

ADDE 3 ' OD 2HH I#3DG . / 2#G C2 G #3 >' E B25DE36aE &/ 7 D\ ID/ 2#G O2GD ,a7 /3 .(#^ E 7 G23DG AI#G

< '(@& " 8$,")&, &'$!"&(7)$" "+)$-- $'(%$?@& -$*81- 8#, ")& +&4&,$- 5&,+#'+ *)# @? 4 ,"1& #8 ") + !" +)$--)&,&$8"&,)#-(#, 2&,8#,% ")& 31" &+ C8 ")& +$ (+&4&,$- 88 !&+ #8 D&&2&, #, -&,: #8 ")& $'$2&,6 -&,: #8 ")& ,#* ' ')$'!&,?6 -&,: #8 ")& 5$"&'"+6 -&,: #8 ")& 1+"#(&+ #8 1'$" !+ $'((#"+6A)$88 E $96 &$-&,6 -&,: #8 ")& 5,&+&'"$" #'+6 $'(-&,: #8 3 +2&'N +$" #'+ $'($!1-" &+6 "#)$4&6 ,&!& 4&6 $'("$:& $-- $'(&4&,? ")& &&+ $'(%#-1%&'"+ *) !))$4& @&&' $!!1+"#%&("# @& 2$ ($'(*) !) #8 , .)" #1.)" "# @& 2$ (" ")& +$ (+&4&,$- 88 !&,+ ,&+2&!N " 4&-?6 #, "# $'? 3&21"? #, -&,: #8 +1!) +&4&,$- 88 !&,+6 ' ,&+2&!" 8 ")& +$ (+&4&,$- 88 !&+6 $+ ")& +$%& *#1-( )$4& @&&' 2$?$@-& 8 ") + !" $'(")& +$ (,&! "&(!")$('#"@&&' 2$++&($'(")$" +1!) &&+ $'(%#-1%&'"+ +)$-- @& $!!#1'"&(8#, #'!& ' &4&,?),&& #'")+6 !#%%&'! '. ' ")& 8 ,+" '+"$9 !& 8,#% ")& 3$"& #8 +1!) 22# '"%&'"+ ,&+2&!" 4&-?6 $'(+)$-- @& 2$ (")& +$ (88 !&,+ ,&+2&!" 4&-? '"# ")& &!& 2" #8 + $>&+"?;+ 9!)&C1&,6 $'(@& !$,, &("# $'(%$(& 5$," #8 ")& #'+#- ($"&(1'(#8 ")& V' "&(D '.(#% #8 ($'(-$'(")& !!#1'" #8")& 5$,"? +# 2$? '. +1!) &&+ +)$-- @& 4&, 8 &(@?) + $")6 *) !) $") $'? '& #8 ")& $+"&,+ ' ,('$,? #8 ")& .) #1," #8)$'!&,? +)&,&@? ,&C1 ,&($'($1")#, L&("# $(% ' +"&,

Z"23 B2##D/3"D 272/ DE . '7. HD/E 2/D 'D C2 G

< '(@& " 81,")&, &'Z!"&(6)$" ")& +$ (+&4&,$- $-$, &+ #, 1,$+)&,& 'B@&8#,& (,&!"&("# @& 2$ (+)$-- @& ++1&($'(2$?N $@-& #1" #8 $'(@& !)$,.&($'(!)$,.&$@-& 12# ' ")& #'+#- ($"&(1'(#8 ")& V' "&(D '.(#% #8 ($'($8"&, 2$? '. #, ,&+&,4 '. +188 ! &'" "# 2$? $-- +1!) 1% '/ 1%+ #8 #'&? $+)$4& @&&' (,&!"&(1'(&, $'? 8#,%&, !" '/ !"+ "# @& 2$ (#1" #8 ")& +$%& 1'($'(")& +$ ($-$, &+ #, 1,$+ +)$-- 8,#% %& "# %& @& 2$ ($'(2$?$@-& C1$,"&,-?6 8,&& $'(!-&$, #8 $'(#4&, $'($@#4& $-- &&+6 $"&+6 $9&+6 $'(3&(1!" #'+ *)$"+#&4&,6 $" ")& #1, 1+1$- 3$?+ #8 5$?%&'" ")& &$,6 ")$" + "# +$?6 ")& 8") 3$?# & ")& 8") 3$? #8 ")& 8") 3$? #8 & $'(")& &'") 3$? #8 ! " ' &$!) &$,6 ' &4& $'(&!>1$- 5#, #'+6 ")& 8 ,+" 5$?%&'" "# @& %$(& #' +1!) #8 ")& +$ (3$?+ $+)$-- '&9")$22&' $8"&, ")& 22# '"%&'" #, 1!!&++ #' "# ")& +$ (88 !&+ ,&+2&!" 4&-? +)$--)$4& "$:&' 2-$!&

=D #CC #3 OD#3 . (7D/] . # / 7OD#3E # 2#] / IC3H6 2H/DH2O76 3 H3 7] @ G /

'(*)&,&$+ ")& 88 !& #8 -&,: #8 ',#-%&'"+ ' $':,12"!? + @? ")& +$ (,&! "&(!" $-+# (,&!"&("# !&$+& $+ ")&,& ' 2&! 8 &(6 @1" 5#*&, "# ,&B$22# '"# ")& $(88 !& +. 4&' @? ")& !" '&9")&,& ' %&'"#'&(' @& "&'$!"&(6)$"")& +$ (88 !& +)$-- $'(%$?@& 8,#% %& "# %& $22# '"&("# ")& +$%&6 *") $-- ")& 5#*&,+6 1")#, "&+6 $'(31" &+6 &&+6 .)"+6 $'(5, 4 -&.&+6 . 4&' "# #, %2#+&(12# ")& +$ (88 !& @? $' !" 2$++&(")& &!#'($'( ) ,(&$,+ #8 ")& & . #8 + 2,&+&'" $>&+"?6 '"1-&(* $ (+ $'?") '. ")&+$ (8 ,+"B ,&! "&(!""#")& !#'",$,?")&,&#8'#"* ")+"$'('.

3] 5, '"&(@? > + 6 ? + * 6 + $'(! 6 + & + 5, '"&,+ "#")& D '.;+ %#+" 9!&--&'" $>&+"? A

' ' Z' TV

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(+ '

H3' . / D..DH3 #4' 2# //2#4DOD#3' Z 3"' 3"D' . '
, ' (OC2#6!' 2#G' . / 3"D' OD33D/' FD/#OD#3'
.' > E' B25DE36aE' D// 3 / DE!' 3 7/' 3"D' " /3 D3"
*26' .' % " ' '#D' 3" IE2#G' D 4"3' "I#G/DG' 2#G'
. .36 . I/' [Q3"' % ' Q _

@ ' @?' $"' !"' 2$++&(' '' ")&' 8"?B") ,(' &$,' #8' ")&'
& . '' #8' +' $>&+"?' D ' .' ' ")&') ,(6' '" "1-&('
' ' ' ' ' ' $+"' '($' * ' ' ' V H 7VV '
5 *' ' > ' ' ' , " +)' 5 ' ' '($6'
' F$ ' ' 8 ' > -' ' " ' '
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' 5 ' ' ' *' ' > ' F$ ' ' * ' ' ' ' *=
F' ' ")&' 5#++&++ #'' $'(' H#4&,'%&''' #8' ")&' ('
&,, "#, &+' '' ' *&,&' !#'" '1&(' '' ")&' V' "&(' #%2$'?' #8'
&,!)$'"+' #8' . ' ",$(' .' ' ")&' . ' ' 8#,' $' &,%'
")&,& '' %&'" #'&(]' '(' *)&,&$+' ")&' +$ (' #%2$'?' $,&' &'" "-&('
"#' #,' !-$ %' ")&' #,(+) 2+' $'(' +-$'(+' #8' ,') ' $'(' (*" '
1'(&,' H,$'"+' 8,#%' ")&' ,#* '6' $'(' #")&,' 5,#2&,"?' "#' $' -$,.&'
%#1''' '' <$-1&6' $'(' $-+#' !&,"$ '' .)"+' $'(' 5, 4 -&.&+' '#"'
$88&!"&(' @?' ")&' 3&"&,% '$" #'' #8' ")&' &,%' .,$'"&(' @?' ")&' +$ ('
,&! "&(' !"]' '(' *)&,&$+' ")&' +$ (' #%2$'?')$4&' !#'+&'"&(' ")$"'
$--' ")& ,' .)"+' $'(' '"&,&+"+' "#' #,' '' ")&' +$ (' &,, "#, &+6' $'('$--' ")& ,'
&,, "#, $-' $'(' #%%&,! $-6' &$-' $'(' 5&,+#'$-' ++&"+' $'(' 5,#2&,"?'
' '
*)$"+#&4&,6

)$"+#&4&,6 +)$--6 +1@>&!" "#' ")&' 3&@"+' $'(' $@ - " &+' '#' $88&!" '.'
")&' +$%&6 @&' 2-$!&(' $" ")&' 3 +2#+$-' #8' 5$,- $%&'" '' !#'+ (&,$"#"
#8' !&,"$ '' 5,#4 + #'+')&,& 'B$8"&,' %&'" #'&(6 $'(')$4&' $-+#' !#'+&'"&('
")$" ")&, ' .)" "#' ",$(&' 8#,' ")&,' #*'' 5,#8 " '' !#%%#'' * ")' #")&,'
+' $>&+"?;+' 1@>&!"+' @&' +1+2&'(&(' (1, '.' +1!)' %&' $+' ")&'
H#4&,'%&'" #8' ")&' +$ (' &,, "#, &+' +)$--' @&' !#'8 (&(' "#' ")&%]
'(' *)&,&$+' " +' &92&(&'" ")$" ")&' +$ (' &,, "#, &+' '#*' 1'(&,'
")&' H#4&,'%&'" #8' ")&' +$ (' #%2$'?' @&' !#'" '1&(' 1'(&,' +1!)'
H#4&,'%&'"6 @1" '' ,1+" 8#,' ")&' ,#*'' #8' ")&' V' "&(' D '.(#%'
#8' ' (' $'(' ' $'(' (+!)$,.&(' #8' $--' -$ %+' #8' ")&'
+$ (' #%2$'?' "#' $'?' 5,#8 " ")&,&8,#%' "#' ")&,' #*'' V+&6 &9!&2"
")&' 3 4 (&'(')&,& 'B$8"&,' +&!1,&(' "#' ")&%6 $'(' ")$" ")&' 5,#2&,"?'
#8' ")&' +$ (' #%2$'?' @&' !#'" '1&(' '' ")&,' 5#++&++ #'' $'(' $" ")&,'
3 +2#+$-6 '' ,1+" 8#,' ")&' ,#*'6 8#,' ")&' &,4 !&' #8' ")&' +$ ('
H#4&,'%&'"6 $'(' #")&,' 51,2#+&+' '' ") +' !" %&'" #'&(] &' "
")&,&8#,&' &'$!"&(' @?' ")&' D '.;+' %#+" 9!&--&'" $>&+"?6 @?' $'('
*")' ")&' (4 !&' $'(' #'+&'" #8' ")&' #,(+' 2, "1$-' $'(' &%2#,$-6
$'(' #%%#'+6 '' ") +' 2,&+&'" 5$,- $%&'" $++&%@-&(6 $'(' @?' ")&'
1")#, "?' #8' ")&' +$%&')$" 8,#%' $'('$8"&,' ")&' *&'"?B+&!#'(' 3$?'
#8' ' '&' ")#1+$'(' & .)")1'(,&('$'('") ,"?B8#1,' ")&' &,, "#, $-'
!C1 + " #'+' $'(' &4&'1&+' %&'" #'&(' #,' ,&8&,,&(' "#' '' ")&' +$ (' !"
#8' ")&' 8"?B") ,(' &$,' #8' +' -$"&' $>&+"?' D '.' ' ")&') ,(6
"#.&")&,' * ")' ")&' 5#," $'(' +-$'(' #8' (*" ' $'(' $--' #")&,' &,, N
"#, &+' '#*' '' ")&' 5#++&++ #'' $'(' 1'(&,' ")&' H#4&,'%&'" #8' ")&' +$ ('
#%2$'?6 &9!&2" ")&' +-$'(' #8' ,') ' +)$--' ,&%$ '' $'(' !#'N
" '1&' 1'(&,' +1!)' H#4&,'%&'" 1'" -' ")&') ," &")' 3$?' #8' '
'&' ")#1+$'(' & .)")1'(,&(' $'(' 8 8"?B8#1,' ' $'(' ")$" $--' ")&' $'(+'
$'(' &,&("$%&'"+6 &4&'1&+6 &'"+6 $'(' 5,#8 "+' #8' ")&' +$ (' #%N
2$'?6 $'('$--' ")&' "#,&+6 &,!)$'(L&6)$""&-+6 #' &+6 3&@"+6 $'('
&$-' $'(' 5&,+#'$-' +"$"&' *)$"+#&4&,6 &9!&2" ")&' +$ (' +-$'(' #8' ,'
) ' $'(' ")&' "#,&+' $'(' 5,#2&,"?' ")&,&#'')&,& 'B$8"&,' %&'" #'&(6
+1@>&!" "#' ")&' 3&@"+' $'(' $@ - " &+' '#*' $88&!" '.' ")&' +$%&' ,&+2&!N
" 4&-?6 $'(' ")&' &'&8 " 8 $--' #'",$!"+6 #4&'$'"+6 $'('(' '.$.&N
%&'"+6 $'(' $--' .)"+' "#' '&+6 5&'$-" &+6 $'(' #,8& "1,&+6 $'(' #")&,'
%#-1%&'"+' *)$"+#&4&,6 *) !)' ")&' +$ (' #%2$'?' +)$--' @&' +& +&(' #,'
2#++&++&(' #8' #,' &'" "-&(' V'"#' #'' ")&' +$ (' *&'"?B+&!#'(' 3$?' #8'
' '&' ")#1+$'(' & .)")1'(,&('$'('") ,"?B8#1,6 +)$--' ,&%$ '' $'('
@&' 4&+"&(' '6 $'(' @&')&-(6 ,&!& 4&(6 $'(' &9&,! +&(' ,&+2&!" 4&-?6
$!!#,(' '.' "#' ")&' $"1,&' $'(' T1$- "?6 +"$"&' $'(' '"&,&+" #8' $'('
")&' +$%&' ,&+2&!" 4&-?6 @?' ")&' +$ (' #%2$'?6 '' ,1+" 8#,' +'
$>&+"?6 +' &,+' $'(' 1!!&++#,+6 8#,' ")&' &,4 !&' #8' ")&' H#4&,'N
%&'" #8' (+!)$,.&(' #8' $ -' -$ %+' #8' ")&' +$ (' #%2$'?' "#' $'?'
5,#8 " #,' (4$'"$.&' ")&,&8,#%' "#' ")&,' #*'' V+&6 &9!&2" ")&' 3 4 (&'('
#'' ")&,' $2 "$-' "#!:6 +&!1,&(' "#' ")&%' $+')&,& 'B$8"&,' + %&'" #'&(6
+1@>&!" "#' +1!)' 5#*&,+' $'(' 1")#, "&+' 8#,' ")&' 12&, '"&'(&'!&6
3 ,&!" #'6 $'(' #'",#-' #4&,' ")&' !"+6 2&,$" #'+6 $'(' #'!&,'+' #8'
")&' +$ (' #%2$'?' $+')$4&' @&&'' $-,&$(?' %$(&' #,' 2,#4 (&(' @?' $'?'
!" #,' !"+' #8' 5$,- $%&'" '' ")$" &)$-86 #,' $,&' %$(&' #,' 2,#4 (&('
@?' ")+' !"

"D' / 3 E" D// 3 / DE # #G # 3 ' /DO2 # I#GD/' 3"D' FD/#!' # D#3' .' 3"D' Ma # C2#6 3 77 U3" C/ 7 QV

=D27 2#G +D/E #27 +/ CD/36 .' 3"D' (OC2#6 3 ' OD' "D7G # /IE3. /' 3"D' (/ Z#!' . /' 3"D' D/^ F HD' .' #G 2

77 / ' !' 7'('@&' "&'$!"&(6)$" $--' $'(' + '.1-$,' ")&' 5, 4 -&.&+6 ,$'B'
Z!7A;'"&(7A' !) +&+' @ - " &+6 2! " &+6 5#*&,+6 1")#, " &+6 *)&")&,' - "$,?' #,'
@?;+-7H +' 4 -6 .)"+6 &%&(&+6 &")#(+' #8' 1 "6 5&'$-" &+6 #,8& "1,&+6
H' W'. /'

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3 +$@ - " &+6 5,#4 + #'+6 $""&,+6 $'( ) '.+ *)$"+#&4&, .,$'"&("# 3"D DO
#, !#'" '1&(' ")& +$ (V' "&(#%2$'? @? ")& +$ (!" #8 ")& 3"D/DO6
8"?B") ,(&$, #8 D '. ' ")&) ,(6 8#, $'((1, '. ")& &,% 7 O 3DG N
- % "&(@? ")& +$ (!"6 $'($-- #")&, ")& '$!"%&'"+6 5,#4 + #'+6 2#G277 K2D3
$""&,+6 $'( ) '.+ !#'"$ '&(' ")& +$ (!"6 #, ' $'? #")&, !" OD#3E #C3 /D
#, !"+ *)$"+#&4&,6 *) !) $,& - % "&(#, %$? @& !#'+",1&("# @& C I4#2#3 3
- % "&("# !#'" '1& 8#, $'((1, '. ")& &,% .,$'"&("# ")& +$ (3" E H3 F
#%2$'? @? ")& +$ (!" #8 ")& 8"?B") ,(&$, #8 D '.
")&) ,(6 +# 8$, $+ ")& +$%& #, $'? #8 ")&% $,& ' 8#,!&6 $'('#"
,&2&$-&(@? #, ,&21. '$'" "# ")& '$!"%&'"+)&,& 'B$8"&, !#'"$ '&(6 $+ 27E 27
$'($-- 5#*&,+ #8 - &'$"#" $'(3 +2#+ "#'6 .)"+6 ,$'!) +&+6 = 4"3E Z G
$'(%%1' "&+6 *) !) ")& +$ (V' "&(#%2$'? '#*)$4&6 +)$--
!#'" '1& $'(@& ' 8#,!&6 $'(%$? @& &9&,! +&($'(&'>#?&(6 $+
$.$ '+" $-- 5&,+#'+ *)#%+#&4&,6 +1@>&!" "# ")& 12&, '"&'(&'!&6 @& ';8#,!&
3 ,&!" #'6 $'(#'",#-)&,& 'B@&8#,& %&'" #'&(6 1'" - ")&) ," &") I#3 7 C/ 7
3$? ' '& ")#1+$'(& .)")1'(,&($'(8 8"?B8#1, "Z7'""2 77A

5,#4 (&($-*$?+6 $'(@& " &'$!"&(6)$" 8,#% $'($8"&, ")& >B,#% //(
+$ (*&'"?B+&!#'(3$? #8 '& ")#1+$'(& .)")1'(,&($'(C/ 7 Q !
") ,"?B8#1, ")& &9!-1+ 4& .)" #8 ",$('. * ") ")& 3#% ' #'+ #8")&
%2&,#, #8 $'(#8 ",$('. ' &$6 !#'" '1&("# ")& +$ (!#%2$''#
#%2$'? @? ")& +$ (!" #8 ")& 8"?B") ,(&$, #8 D '. !&$+&6
")&) ,(6 +)$-- !&$+&

< '(@& " &'$!"&( )$" ")& +$ (#%2$'? +)$--6 * ") $-- (OC2#6 3
!#'4&' &'" 2&&($8"&, ")& +$ (*&'"?B+&!#'(3$? #8 ! H7 ED 3" 1
")#1+$'(& .)")1'(,&($'(") ,"?B8#1,6 !-#+& ")& , #%%&,! $- (/2OD/H 5 7
1+ '&++6 $'(%$:& +$-& $-- ")& , &,!)$'(L&6 "#,&+6 $'(, IE #D 2#G
88&!"+ $" #%& $'(@,#$(6 (+" '.1 +)&(' ")& , !!#1'" ##:+ 3 ED77 3OD
$+ #%%&,! $- ++&"+6 $'($-- ")& , E$,&)#1+&+6 $'(+6 &'&%&'"+6 +/ CD/36 # 3
&,&("$%&'"+6 $'(5,#2&,"? *)$"+#&4&, *) !) %$? '#" @& ,&"$ '&(/D32 #DG . FD/#OD#3
8#, ")& 51,2#+&+ #8 ")& H#4&, '%&'" #8 ")& +$ (&,, "#, &+6 $'(.&"
$-- 3&@"+ (1& "# ")&% #" $!!#1'" #8 ")& #%%&,! $- ,$'!)
#8 ")& , 88$,+6 $'(,&(1!& ")& , #%%&,! $- +"$@- +)%&'"+ $+ ")&
+$%& +)$-- @&!#%& 1''&!&++$,?6 $'((+!#'" '1& $'($@+"$ 8,#% $--
#%%&,! $- 1+ '&++ *) !) +)$-- '# @& ' ! (&'" "# ")& !-#+ '. #8
")& , $!"1$- #'!&,'+6 $'("# ")& #'4&,+ # '"# #'&? #8 ")&
5,#2&,"?)&,& 'B@&8#,& (,&!"&("# @& +#-(6 #, *) !) +)$-- '# @&
!$,, &(#' 8#, ")& 51,2#+&+ #8 ")& +$ (H#4&, '%&'"

< 5,#4 (&($-*$?+6 $'(@& &'$!"&(6)$" '#") '.)&,& ' #%2$''? '#"
!#'"$ '&(+)$-- 2,&4&' ")& +$ (#%2$'? 8,#% +&-- '.6 $" ")& $-&+ 2,&4&'"7
#8 ")& , #* ' H##(+ $'(&,!)$'(L& @? ") + ! (,&!"&(#, D77 #4 GE
$1")#, L&("# @& %$(&6 +1!) H##(+ $'(&,!)$'(L& ")& 5,#2&,"? 3"D +/ CD/36
#8 #")&, 5&,+#'+ $+ ")&? %$? '#* -$*81-? +&-- $" ")& , 21@- ! $-&+ . 3"D/ +D/E #E

< '(@& "&'$!"&( )$" ")& #$,(#8 #%% ++ #'&,+ 8#, ")& 2/G .
88$,+ #8 +)$--)$4& 81-- 5#*&, "# +12&, '"&'(6 (,&!"6 $'((#3/ 7 3
!#'",#- ")& $-& #8 ")& +$ (&,!)$'(L&6 "#,&+6 $'(88&!"+6 $'(E I CD/ #3D#G
#")&, 5,#2&,"?)&,& 'B@&8#,& (,&!"&("# - & +#-(6 $'("# (&"&,% '& 3"D 27D
8,#% %& "# %&6 1'" - ")& +$ (5,#2&,"? +)$-- @& !#'4&,"&('"@ 3"D +/ CD/36
#'&?6 *)$" 5$,"+ #8 ")& +$ (#%%&,! $- +"$@- +)%&'"+ +)$-- @& 3"D=DG33H
!#'" '1&($'(,&(1!&(,&+2&!" 4&-?6 $'("# !#'",#- ")& --#*$'!& 3 # . 3"D (OOD/H 27
$'(+"$@- +)B

D#3`P' +26^ O D#3' .' (O O D/H 27 (72 O3E' H

$ ' (' 5$?%&' '' #8' $--' -$ %+' 12# ' ' ") &' +$ (' #% 2 -?' !# ' ' &! "&(' * ")' ") &' #%%&,! $-' ,$'!)' #8'") & ,' 88$,+6' $ ' (' .& ' &,$--?' "#' +12&, ' "& ' (' $ ' (' !# ' ",#-' $--' !"+' $ ' (' 2&,$" # ' +' *)$"+#&4&,' #8' ") &' +$ (' #%2$'?' *)&,&@?' ") &' <$-1&' #8' ") &' 5,#2&,"?' #8' ") &' +$ (' #% 2$C' %$?' @&' $88&!"&(=' $ ' (' ") &' +$ (' #$,(' +)$--' $ ' (' %$?' $22# ' ' +1!)' 8 !&,+' $+' +)$--' @&' ' &!&++$,?' "#' $""& ' (' 12# ' ' ") &' +$ (' #$,(' (1, ' . ' ") &' * ' (' .A' 12' #8' ") &' #%%&,! $-' 1+ ' &++' #8' ") &' +$ (' #%2$'?' ' $ ' (' ")$" ' ") &')$,.&' #8' +1!)' $-$, &+' #,' --# * $ ' !&+' $+' +' $>&+"?' +)$--6' @?' $'?' E $,,$ ' ' #,' E $,,$ ' "+' 1 ' (&,' +' . ' $ ' 1$-6' !#1 ' "&,+ . ' &(' @?' ") &')$ ' !&--#,' #8' ") &' 9!)&C1&,' 8#,' ") &' %&' @& ' .6' (,&!' "#' @&' 2$ (' "#' +1!)' 88 !&,+6' +)$--' @&' (&8,$?&(' @?' ") &' +$ (' #%2$'?6' $+')&,& ' N $8"&,' %& ' ' # ' &(6' ' $((" # ' ' "#' ") &' #,(' $,?')$,.&+' #8' ") &' +$ (' #$,(

"D(O C2#6' O26' H #E GD/' (72 O E' .' (O O D/H 27 ' .. HD/E' /D^ G I HDG!' 2#G!' I#GD/' 3"D' (#3/ 7 .' 3"D' 2/G!' 4/2#3' (O^ CD#E23 #E

< ' ' (' @&' " & ' $!"&(')$" " +)$--' @&' -$ * 81-' 8#,' ") &' +$ (' # ' B' 2$'?' "#' "$:&' ' "#' !# ' + (&,$" # ' ' ") &' -$ %+' #8' $ ' ?' 5&,+# ' +' ' #4 ' #,')&,&"#8#,&' &%2-#?&(' @?' #,' 1 ' (&,' ") &' +$ (' #%2$'?6' #,' ") &' E (#* +' $ ' (') -(,& ' #8' $ ' ?' +1!)' 5&,+# ' +6' *)#+&' ' "&,&+"+' %$?' @&' $88&!"&(' @?' ") &' 3 +!# ' ' 1$ ' !&' #8' ") &' +$ (' #%2$'?;+' ,$(&6' #,' *)#' %$?' 8,#%' %&' "#' %&' @&' ,&(1!&(6' $ ' (6' 1 ' (&,' ") &' # ' ",#-' #8' ") &' +$ (' #$,(6' "#' . ,$ ' " +1!)' #%2&' +$" # ' +6' 12&,$ ' ' 1$" # ' +6' #,' --# * $ ' !&+' X") &')$,.&' ") &,&#8' "#' @&' (&8,$?&(' @?' ") &' +$ (' #%2$'?' $+')&,& ' B$8"&,' %& ' ' # ' &([' $+' +)$--' $22&$,' ,&$+# ' $@-&' 5,#4 (&(' $- * $?+6' ")$" ' "#' +1!)' #%2&' +$" # ' +6' 12&,$ ' ' 1$" # ' +6' #,' --# * $ ' !&+' +)$--' @&' . ,$ ' "&(' 1 ' "-' ") &' 92 ,$" # ' #8' * #' $-&' ($,' # ' ") +' $8"&,' 5$," !1-$,+' #8' ") &' #%2&' +$" # ' 6' 12&,$ ' ' 1$" # ' 6' #,' --# * $ ' !&' 2,#A' 2#+&(' "#' @&' +#' . ,$ ' "&(' +)$--')$4&' @&& ' -$ (' @&8#,&' @#")' #1+&+' #8' 5$,- $%& ' '

"D' +2/3 ^ H I72/E' 3"D/D^ .' 3 ' OD' 72 G' OD. /D' +2/7 2^ O D#3' DFD/6' - D2/

< ' 5,#4 (&(' $- * $?+6' $ ' (' @&' " & ' $!"&(')$" * ") ' ") &' 8 ,+" #1,"&& ' ' + "" ' . ' 3$?+' $8,&,' ") &' 8 ,+" %&&' ' . ' #8' 5$,- $%& ' ' ' &4&,?' &$,' ")&,&' @&' -$ (' @&8#,&' @#")' #1+&+' #8' 5$,- $%& ' ' ") &' 5$," !1-$,+' #8' $--' #%2&' +$" # ' +6' 12&,$ ' ' 1$" # ' +6' $ ' (' --# * $ ' !&+' +#' . ,$ ' "&(6' $ ' (' #8' ") &' $-$, &+' $ ' (' --# * $ ' !&+' (,&!"&(' "#' @&' 2$ (' "#' +1!)' 88 !&,+' $+' %$?' @&' $22# ' "&(' @?' ") &' +$ (' #$,(' $+' $8#,&+$ (' (1, ' . ' ") &' 2,&!&(' . ' &$,

(O C2#6aE' * DO3E' 2#G' 2O 7 3 DE' H"2/4DG' #' #G 2

' (' @&' " & ' $!"&(')$" 8,#%' $ ' (' $8"&,' ") &' +$ (' * & ' "?A' +&!# ' (' 3$?' #8' ' & ' ")#1+$ ' (' & .) ')1 ' (,&(' $ ' (' ") ,"?B8#1,' $--' ") &' # ' (' 3&@" #8' ") &' +$ (' #%2$'?' ' (' $ ' (' $--' ") &' &,, "#, $-' 3&@" #8' ") &' +$ (' #%2$'?' ' ' $ ' (' $--' #") &,' 3&@"+' *) !)' +)$--' # ' ")$" 3$?' @&' #* ' . ' @?' ") &' +$ (' #%2$'?6' $ ' (' $--' 1%+' #8' #' &?6' #+"+6')$,.&+6' $ ' (' 92& ' !&+' *) !)' $8"&,' ") &' +$ (' * & ' "?B' +&!# ' (' 3$?' #8' ' & ' ")#1+$ ' (' & .)')1 ' (,&(' $ ' (' ") ,"?B8#1,' %$?' @&!#%&' 2$?$@-&' @?' ") &' +$ (' #%2$'?' ' ,&+2&!" #,' @?' ,&$+# ' #8' $ ' ?' #4& ' $ ' "+6' # ' ",$!"+6' #,' $@ - " &+' ") &' ' &9 +" ' . 6' $ ' (' $--' 3&@"+6' 92& ' !&+6' $ ' (' $@ - " &+' *)$"&4&,' *) !)' $8"&,' ") &' +$%&' 3$?' +)$--' @&' -$ * 81--?' !# ' ",$!"&(' $ ' (' ' !1,,&(' # ' $!!#1 ' ' #8' ") &' H#4&, ' %& ' ' #8' ") &' +$ (' &,, "#, &+6' $ ' (' $--' 5$?%& ' "+' @?' ") ' +' ! ' (,&!"&(' "#' @&' %$(&6' +)$--' @&' !)$,.&(' $ ' (' !)$,.&$@-&' 12# ' ' ") &' &4& ' 1&+' #8' ") &' +$ (' &,, "#, &+' $ ' (' ")$" ' ") &' $ ' (' $' ' ' ' "#! :' #,' 88&!"+' 4F) !)' ") &' +$ (' #%2$'?' %$?')&,&$8"&,')$4&' "#' ") &' ,' # * ' ' V+&6' ' #,' ") &=3 4 (&' (' @?' "- +' !" +&!1,&(' "#' ")&%6' ' #,' ") &' 3 ,&!"#,+' #,' 5,#2, &"#,+' #8' ") &' +$ (

5$ ' $ B ' ' (2C QV UQV

+$ (' #%2$'?6' +)$--' @&' - $@-&' "#' #,' !)$,.&$@-&' * ")' $'?' #8' ")&' +$ ('
3&@"+6' 5$?%&'"+6' #,' $@ - " &+

' 5,#4 (&(' $-*$?+6' $'(' @&' " &'$!"&(6')$" +#' -#'.' $+' ")&'
5#++&++ #'' $'(' H#4&,'%&'" #8")&' +$ (' &,, "#, &+' +)$--' @&' !#'" '1&('
"#' ")&' +$ (' #%2$'?' $--' 5&,+#'+' $'(' #(&+' 5#- " !' +)$--' $'(' %$?'
)$4&' $'(' "$:&' ")&' +$%&' 1 "+6' &%&(&+6' $'(' 5,#!&&('.+6' -&.$-'
$'(' &C1 "$@-&6' $.$ '+" ")&' +$ (' #%2$'?6' '' ,&+2&!" #8' +1!)' 3&@"+'
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2$'?' '' ,1+" $+' $8#,&+$ (' +)$--' @&' +1@>&!" $'(' - $@-&' "#' ")&' +$%&'
R1(.%&'"+' $'(' 9&!1" #'+6' '' ")&' +$%&' $''&,' $'(' #,%' ,&+2&!N
"4&-?' $+' 8' ")&' +$ (' 5,#2&,"?' *&,&')&,&@?' !#'" '1&(' "#' ")&' +$ ('
#%2$'?' "#' ")&,' #*'' V+&

FD/#' O D 53'
.'3"D' (O^
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' '(' @&' " &'$!"&(')$" #1" #8' ")&' &4&'1&+' #8' ")&' +$ ('
&,, "#, &+' ")&,&' +)$--' @&' 2$ (' "#' #,' ,&"$ '&(' @?' ")&' +$ (' #%2$'?6'
"#' ")&,' #*'' V+&6' $' ?&$,-?' 3 4 (&'(' $8"&,' ")&' $"&' #8' &'' 5#1'(+'
&'') -- '.+' ' *' *' #'' ")&' 2,&+&'" %#1'" #8")&,'
$2 "$-' "#!:' ")&' +$ (' 3 4 (&'(' "#' @&' 2$?$@-&' '' (@?'
&C1$-')$-8B?&$,-?' 5$?%&'"+6' #'' ")&' 9")' 3$?' #8' & ' $'(' ")&'
9")' 3$?' #8' & ' '' &4&,?' &$,' ")&' 8 ,+")$-8B?&$,-?' 5$?%&'" "#'
@&' %$(&' #'' ")&' 9")' 3$?' #8' & ' '&' ")#1+$'(' & .)")1'(,&('$'('
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'*7H GD#G' .'
M; ' 3] 'CD/'
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3 ' "C2 G' #'
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3 H]' O6'
"27. 6D2/76'
+26 O D#3E' #'
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' 5,#4 (&(' $-*$?+6' $'(' @&' " &'$!"&(6')$" ")&' +$ (' 3 4 (&'('
+)$--' @&' +1@>&!" "#' &(&%2" #'' @?' 5$,- $%&'" 12#'' $'(' $" $'?' %&'
$8"&,' ")&') ," &")' 3$?' #8' ' '&' ")#1+$'(' & .)")1'(,&(' $'('
+&4&'"?B8#1,6' #'' 5$?%&'" "#' ")&' #%2$'?' #8' *#')1'(,&(' 5#1'(+'
"&,- '.' 8#,' &4&,?' '&')1'(,&(' 5#1'(+' #8' ")&' +$ (' $2 "$-' "#!:6'
"#.&")&,' * ")' $' 2,#2#," #'$"&' 5$," #8' ")&' +$%&' 3 4 (&'(6' 8' ")&'
&(&%2" #'' +)$--' "$:&' 2-$!&' #" $'?' #")&,' 3$?' ")$'' #'&' #8' ")&' +$ ('
)$-8B?&$,-?' 3$?+' #8' 5$?%&'"] 5,#4 (&(' $-+#6' ")$" *&-4&' #'")+'
#" !&' '' E, " '.6' + .' 8 &(' @?' ")&' 2&$:&,' #8' ")&' #1+&' #8'
#%%#'+' @?' ")&' ,(&,' #8' ")&' #1+&6' +)$--' @&' . 4&'' "#' ")&'
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* F GD#G' 3 '
OD' I O5DH3'
3 ' = DGD O C^
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) 3 HD' .' = D^
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' 5,#4 (&(' $-*$?+6' $'(' @&' " &'$!"&(')$" 8' #'' #,' $" $'?'
%&' $8"&,' ")&' +$ (') ," &")' 3$?' #8' ' '&' ")#1+$'(' & .)"
)1'(,&(' $'(' 8 8"?B8#1,' ")&' +$ (' #%2$'?' +)$--6' @?' ")&' 92 ,$" #''
#8")&' &,%')&,&@?' .,$'"&(6' !&$+&' "#' ,&"$ '6' #,' +)$--' @?' ")&' 1")#N
," ?' #8' 5$,- $%&'" @&' (&2, 4&(' #8' ")&' 5#++&++ #'' $'(' H#4&,'%&'" #8'
")&' +$ (' &,, "#, &+6' " +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%2$'?' * ") ''
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3 4 (&'(6' $'(' 5,#4 + #'' +)$--' @&' %$(&' 8#,' M&(&&% '.' ")&' +$ ('
3 4 (&'(6' $8"&,' ")&' $"&' $8#,&+$ (6' * ") ''),&&' &$,+' $8"&,' +1!)'
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.' (. C2#6'
GDC/ FDG' .'
3"D' '. D/#'
#/D#3 .7#G 2!'
3"D6' O 26' GD^
O 2#G' = D^
GD O C3 #' .'
3"D * F GD#G

<' '(' @&' " &'$!"&(')$" ")&,&B' +)$--' @&' 2$ (' @?' ")&' +$ ('
#%2$'?' '"#' ")&' $'.' #8' . ' "#' ")&' !!#1'" #8' ")&' #,$%+]
+#'&,+' 8#,' ")&' &(1!" #'' #8")&' $" #'$-' 3&@"6' +1!)' 1%+' #8' #'&?'
$+' +)$--' '' ")&' *)#-&' $%#1'" "#' ")&' 1%' #8' *#' -- #'+' "&,- '.6'
* ")' #%2#1'(' '"&,&+"$8"&,' ")&' $"&' #8'),&&' 5#1'(+' &'') -- '.+'
/' '

(3 C2 I 6' 3 '
C26' 3 ' (O '
O EE 3 D/E. /'
= DG I H3 #' .'
) 23 C#27 * DO3'
/6 6

ʹ *ʹ ʹ * ʹ !#%21"&(ʹ $-o?&$,-?ʹ 8,#%ʹ ")&ʹ +$ (ʹ *&'"?Bʹ +&!#'(ʹ 3$?ʹ #8ʹ ʹ ,-&ʹ ")#1+$'(ʹ & .)"ʹ)1'(,&(ʹ $'(ʹ ") ,"?B8#1,6ʹ #"ʹ +#ʹ %1!)ʹ #8ʹ ")&ʹ +$ (ʹ 1%+ʹ $+ʹ +)$)ʹ 8,#%ʹ %&ʹ "#ʹ %&ʹ ,&%$ 'ʹ 1'2$ (ʹ $'(ʹ ")&ʹ $+) &,+ʹ #8ʹ ")&ʹ +$ (ʹ $':ʹ +)$--ʹ ,&!& 4&ʹ $--ʹ +1!)ʹ 1%+ʹ #8ʹ #'&?6ʹ $'(ʹ 2-$!&ʹ ")&ʹ +$%&ʹ "#ʹ $ʹ +&2$,$"&ʹ !!#1'ʹ * ")ʹ ")&ʹ +$ (ʹ #%N % ++ #'&,+6ʹ "#ʹ)&ʹ '"1-&(ʹ \ )&ʹ !!#1'ʹ #8ʹ ")&ʹ &!1, "?ʹ 1'(ʹ #8ʹ ")&ʹ ʹ #%2$'?$'(ʹ ")$ʹ $+ʹ *&--ʹ ")&ʹ #' &+ʹ +#ʹ 2$ (ʹ '"#ʹ ")&ʹ +$ (ʹ $':ʹ $+ʹ ")&ʹ 3 4 (&'(+ʹ #,ʹ '"&,&+"ʹ *) !)ʹ +)$--ʹ $, +&ʹ ")&,&8,#%ʹ +)$--ʹ 8,#%ʹ %&ʹ "#ʹ %&ʹ @&ʹ -$ (ʹ #1"6ʹ 1'(&,ʹ ")&ʹ 3 ,&!" #'ʹ #8ʹ ")&ʹ +$ (ʹ #%% ++ #'&,+6ʹ 'ʹ ")&ʹ 51,!)$+&ʹ #8ʹ $2"$-ʹ "#!:ʹ 'ʹ $'?ʹ #8ʹ ")&ʹ ,&N (&&%$@-&ʹ 51@- !ʹ '1"&+ʹ ",$'+8&,,$@-&ʹ $"ʹ ")&ʹ $':ʹ #8ʹ. ʹ *) !)ʹ $2"$-ʹ "#!:ʹ +#ʹ 21,!)$+&(ʹ +)$--ʹ @&ʹ '4&+"&(ʹ 'ʹ ")&ʹ $%&+ʹ #8ʹ ")&ʹ +$ (ʹ #%% ++ #'&,+ʹ #'ʹ $!!#1'ʹ ")&ʹ +$ (ʹ &!1, "?ʹ 1'(6ʹ $'(ʹ ")&ʹ 3 4 (&'(+ʹ 2$?$@-&ʹ ")&,&#'ʹ +)$--ʹ)&ʹ ,&!& 4&(ʹ @?ʹ ")&ʹ +$ (ʹ $+) &,+ʹ $'(ʹ 2-$!&(ʹ "#ʹ ")&ʹ +$ (ʹ !!#1'6ʹ 1'"-ʹ ")&ʹ *)#-&ʹ #8ʹ ")&ʹ 1% ʹ +#ʹ ,&!& 4&(ʹ #'ʹ +1!)ʹ !!#1'ʹ +)$--ʹ)$4&ʹ $%#1'"&(ʹ "#ʹ ")&ʹ 1%ʹ 8ʹ *&-4&ʹ --#'+ʹ "&,- '.ʹ $'(ʹ ")&ʹ +$ (ʹ #' &+6ʹ "#!:6ʹ $'(ʹ 3 4 (&'(+6ʹ #,ʹ '"&,&+"6ʹ +)$--ʹ @&ʹ $ &!1, "?ʹ 1'(ʹ 8#,ʹ @&""&,ʹ +&!1, '.ʹ "#ʹ ")&ʹ +$ (ʹ #%2$'?ʹ ")&ʹ &(&%2"#'ʹ #8ʹ ")&,ʹ +$ (ʹ 3 4 (&'(ʹ $8"&,ʹ ")&ʹ $"&ʹ)&,& 'B@&8#,&ʹ $22#'"&(ʹ 8#,ʹ +1!)ʹ &(&%2"#'

3 ʹOD C72HDG 3 ʹ HH I#3 .ʹ DHI/36 AI#G .ʹ3"D (0C2#6ʹ B #DE 2#G * F GD#GE 3 ʹ OD 72 G I3 # DHI/3 DE! 2#G * F ^ GD#GE C72HDG 3 ʹE2OD H^ H I#3! I#3 7 3"D Z" 7D 20 ##3E 3 ʹ ʹB 77 #E

<ʹ 5,#4 (&(ʹ $-*$?+6ʹ $'(ʹ @&ʹ "ʹ &'$!"&(ʹ)$"ʹ "ʹ +)$--ʹ @&ʹ -$*81-ʹ 8#,ʹ ")&ʹ +$ (ʹ #%% ++ #'&,+ʹ 8#,ʹ ")&ʹ &(1!" #'ʹ #8ʹ ")&ʹ $" #'$-ʹ 3&@"ʹ 8,#%ʹ %&ʹ "#ʹ %&6ʹ $'(ʹ ")&?ʹ $,&ʹ)&,&@?ʹ ,&C1 ,&(6ʹ 12#'ʹ &C1 +" #'ʹ %$(&ʹ 8#,ʹ ")$"ʹ 51,2#+&ʹ @?ʹ ")&ʹ #1,"ʹ #8ʹ 3 ,&!"#,+ʹ 8ʹ ")&ʹ +$ (ʹ #%N 2$'?6ʹ "#ʹ ,$ +&ʹ $'(ʹ 2$?ʹ "#ʹ ")&ʹ +$ (ʹ #%2$'?ʹ +1!)ʹ 1%+ʹ #8ʹ #'&?ʹ $+ʹ %$?ʹ @&ʹ '&!&++$,?ʹ 8#,ʹ ")&ʹ 5$?%&'ʹ #8ʹ ")&ʹ +$ (ʹ #%2$'?+ʹ 3 4 (&'(ʹ @?ʹ ,&$+#'ʹ #8ʹ $'?ʹ $ -,&ʹ #,ʹ '"&,&+"ʹ 28ʹ ")&ʹ &% ""$'!&+ʹ %ʹ ")&ʹ 2,#2&,ʹ 1'(+ʹ 8#,ʹ +1!)ʹ 5$?%&'"ʹ +1!)ʹ 1%+ʹ #8ʹ #'&?ʹ "#ʹ @&ʹ ,$ +&(ʹ @?ʹ $-&ʹ #,ʹ ,$'+8&,ʹ #,ʹ 3&2#+ "ʹ @?ʹ *$?ʹ #8ʹ #,".$.&ʹ #8ʹ $ʹ !#%2&"&'ʹ 5$,ʹ #8ʹ ")&ʹ +$ (ʹ &!1, "?ʹ 1'(6ʹ $!!#,('.ʹ $+ʹ ")&ʹ +$ (ʹ 3 ,&!"#,+6ʹ * ")ʹ ")&ʹ 22,#@$" #'ʹ #8ʹ ")&ʹ +$ (ʹ #$,(6ʹ +)$--ʹ (,&!"ʹ "#ʹ @&ʹ ,&2$ (ʹ '"#ʹ ")&ʹ $':ʹ #8 . ʹ"#ʹ ")&ʹ !!#1'ʹ #8ʹ ")&ʹ &!1, "?ʹ 1'(6ʹ * ")ʹ '"&,&+"ʹ $8"&,ʹ +1!)ʹ $"&ʹ $+ʹ ")&ʹ #1,"ʹ #8ʹ 3 ,&!"#,+6ʹ * ")ʹ ")&ʹ 22,#@$" #'ʹ #8ʹ ")&ʹ +$ (ʹ #1,"6ʹ +)$--ʹ 8 96ʹ #1"ʹ #8ʹ ")&ʹ &% ""$'!&+ʹ *) !)ʹ +)$--ʹ @&ʹ %$(&ʹ 8#,ʹ $'+*&,ʹ '.ʹ +1!)ʹ 3 4 (&'(6ʹ $+ʹ $'(ʹ *)&'ʹ +1!)ʹ &% ""$'!&+ʹ +)$--ʹ @&ʹ ,&!& 4&(ʹ 'ʹ .

(0 0 E^ E #D/E . / =DGIH3 # .ʹ)23 #27 *DO3! IC # =D\I 4 3 # .ʹ(I/3! 026 /2 ED B #D6 . /C26 #43"D * F GD#G # H2ED .ʹ A27I/D / *D726 .ʹ=D^ 0 332#HD .ʹ C/ CD/AI#GE

< ʹ 5,#4 (&(ʹ $-*$?+6ʹ $'(ʹ @&ʹ "ʹ &'$!"&(ʹ)$"ʹ $--ʹ 3 4 (&'(+ʹ #'ʹ ")&ʹ $2"$-ʹ "#!:ʹ 8#,% '.ʹ ")&ʹ +$ (ʹ &!1, "?ʹ 1'(ʹ $!!,1 '.ʹ $8"&,ʹ ")&ʹ #' &+ʹ ,&!& 4&(ʹ @?ʹ ")&ʹ +$ (ʹ $':ʹ "#ʹ ")&ʹ !!#1'ʹ #8ʹ +1!)ʹ 1'(ʹ +)$--ʹ)$4&ʹ $%#1'"&(ʹ "#ʹ ")&ʹ 1%ʹ #8ʹ *&-4&ʹ --#'+ʹ "&,- '.6ʹ 1'"-ʹ ")&ʹ +$ (ʹ 1'(ʹ +)$--ʹ @&ʹ $22-&(ʹ "#ʹ ")&ʹ &(&%2"#'ʹ #8ʹ ")&ʹ +$ (ʹ #%2$'?;ʹ 3 4 (&'(6ʹ $'(ʹ $-+#ʹ $--ʹ ")&ʹ +$ (ʹ &!1, "?ʹ 1'(ʹ #,ʹ +#ʹ %1!)ʹ ")&,&#8ʹ $+ʹ +)$--ʹ ,&%$ 'ʹ $8"&,ʹ ")&ʹ +$ (ʹ 3 4 (&'(+ʹ +)$--ʹ @&ʹ *)#--?ʹ ,&(&&%&(ʹ $8"&,ʹ ")&ʹ $"&ʹ $8#,&+$ (6ʹ +)$--ʹ @&ʹ $22-&(ʹ "ʹ $ (ʹ #8ʹ ")&ʹ &4&'1&+ʹ #8ʹ ")&ʹ +$ (ʹ &,, "#, &+

CC7H23 # .ʹ* F GD#GE .ʹ DHI/36 AI#G 2#G 3"D AI#G 3ED7.ʹ # 2G .ʹ =DFD#IDE

< ʹ '(ʹ @&ʹ "ʹ &'$!"&(ʹ)$"ʹ ")&ʹ +$ (ʹ 3 4 (&'(ʹ #'ʹ ")&ʹ #%N 2$'?;+ʹ $2"$-ʹ "#!:ʹ +)$--ʹ @&ʹ 2$ (ʹ #,ʹ ,&"$ '&(ʹ $+ʹ $8#,&+$ (ʹ #1"ʹ #8ʹ +1!)ʹ 5$,ʹ #8ʹ ")&ʹ &4&'1&+ʹ #8ʹ ")&ʹ +$ (ʹ &,, "#, &+ʹ $+ʹ +)$--ʹ @&ʹ ,&%$ '"&(ʹ #"ʹ 2,&8&,&'!&ʹ "#ʹ $--ʹ #")&,ʹ)$,.&+ʹ 2$?$@-&ʹ ")&,&#1"ʹ ('ʹ 2,&8&,&'!&ʹ "#ʹ $--ʹ #")&,ʹ)$,.&+ʹ 2$?$@-&ʹ ")&,&#1"ʹ (-ʹ $'(ʹ ")$"ʹ ")&ʹ +$ (ʹ 1%ʹ #8ʹ *#ʹ --#'+ʹ "&,- '.ʹ +)$-- # @&

(0C2#6aE * F GD#GE 3 ʹ OD C2 G I3 .ʹ=DFD#IDE # C/D.D/D#HD 3 ʹ 3"D/ ("2/4DE! 2#G

; Z Q^H V ' <' $2' 0 UQ

@&' 2$ (' '' %$'' '&,' $8#,&+$ (' #1'' #8' $'?' 1%+' *) !)' +)$--' #''' '')&' +$ (' /6 6 '
*&' '"?B+&!#' (' 3$?' #8' ' '&' '')#1+$' (' & .)'')1' (,&(' $' (' 3C' OD' C2 G'
'') ,"?B8#1,' @&' (1&' "#' '')&' +$ (' #%2$' '?' 8,#%' '')&' 51@- !' $+' $' (' *)&'' I3' .' ,JDO3'
'')&' +$%&' +)$--' @&' ,&!& 4&(6' $' (' #1'' #8' $'?' #' &+' *) !)' +)$--' $, +&' GID' ./ 0' 3"D'
8,#%' '')&' $-&' #8' $'?' H#4&,'%&'' '' "#!:' #'' '')$'' 3$?' @&-#' . ' .' "#' +I07 H' 2#G'
'')&' +$ (' #%2$' '?6' '' 2,&8&,&' !&' "#' $--' #'')&,' 5$?%&' '"+' '')&,&#1'' ' $' (' 06' 27D' .'
'')$''6' +1@>&!'' "#' +1!)' 5,#4 + #' +' 8#,' 5, #, "?' #8')$,.&6' '')&' &4&' 1&+' 3 H]
#8' '')&' +$ (' &,, "#, &+6' $' (' $--' #' &+' *) !)' +)$--' @&-#' .' "#' '')&' +$ (' O5De/3' 3 '
#%2$' '?' #'' '')&' +$ (' *&' '"?B+&!#' (' 3$?' #8' ' '&' '')#1+$' (' IH'' +/ / ^
& .)'')1' (,&(' $' (' '') ,"?B8#1,6' $' (' $--' #' &+' *) !)' +)$--' @&' '')&,&N 3 DE!' =DFD^
$8"&,' ,&!& 4&(' @?' '')&' +$ (' #%2$' '?' 8,#%' $' (' '' ,&+2&!'' #8' '')&' # I DE' 2#G'
5,#2&,"?' $' (' .)'"+' 4&+"&(' '' '')&%' '' ,1+'' $+' $8#,&+$ (6' +)$--' @&' B # D' 3 ' OD'
$22- &(' "#' '')&' &,4 !&' #8' '')&' H#4&,'%&'' #8' '')&' +$ (' &,, "#, &+6' $' (' 2CC7 DG' 3 '
'' (&8,$? ' .' $--')$,.&+' $' (' 5$?%&' '"+' @?' '') +' !'' !,&$"&(6' #,' !1'B' D/F HD' .'
8 ,%&(' $' (' (,&!"&(' "#' @&' %$(&' ,&+2&!'' 4&-?6' '' +1!)' ,(&,' $+' '')&' #G 2' 2#G'
+$ (' #1,'' #8' 3 ,&!"#,+6' 1' (&,' '')&' #'",#-' #8' '')&' +$ (' #$,(6' +)$--' +I/C EDE' .'
8,#%' %&' "#' %&' (,&!'' ' $'?' '') ' .' '' $'?' #'')&,' !'' #,' !"+' !#'N 3] E' D3!' 1#1'
"$ '&(' "#' '')&' !#'",$,?' '#''* '')+"$' ('. GD/' (#3/ 7

< ' 5,#4 (&(' $-+#6' $' (' @&' '' '&' $!"&(')$'' '#'') ' .')&,&)'' 3'3 ' C/D5I^
!#''$ '&(' +)$--' @&' !#'+'',1&(' #,' #2&,$"&' "#' '')&' 5,&>1(!&' #8' $'?' G HD' +D/E #E'
5&,+#' +' !-$ % ' .' #,' "#' !-$ %' 1' (&,' $' 3&&(' #8' #4&' $'' "+' ($"&(' '')&' H72 3# /4'
&' '')' 3$?' #8'& ' '&' '')#1+$' (' & .)'')1' (,&(' $' (' 8 4&6' $' (' %$(&' I#GD/' 2'
@&"*&&'' '')&' +$ (' #%2$' '?' #8' '')&' #'&' 5$,"6' $' (' '')&' +&4&,$-' 5&,+#' +' (FD#2#3' OD^
*)#+&' $' (+' +)#1-(' @&' '')&,&"#' +&'' $' (' $88 9&(6' $' (' *)#' ,&+2&!'' 4&-?' 3ZDD#' 3"D'
*&,&' #,' !-$ %&(' "#' @&' ,&("#,+' #8' +' .)'&++' '')&' $@#@' / (0C2#6'
& ' 8#,%&,-?' $@#@' #8' ' $' (' #8' '')&' ' '' '')&' & ' ' 2#G' 3"D' (/D^
$' (' '#*' (&!&$+&(6' $' (' #8' +' .)'&++' '')&' $@#@' ! * ' ! * ' G 3 /E' .' 3"D'
-$"&' $@#@' #8' ' $' (' #8' '')&' ' $' (' '#*' $-+#' (&!&$+&(6') 2O OE' .'
$' (' #8' +' .)'&++' '')&' * ' ' ! * ' #8' '')&' #'')&,' 5$," /H 3!' D

' ' (' @&' '' &' $!"&(')$'' '' +)$--' $' (' %$?' @&' -$*81-' 8#,' > E' B 25DE36'
+' $>&+"?' @?' $'?' &'''&,+' 5$"&' '6' #,' @?' $'?' #%% ++ #'' #,' #%B' 7 ' 2CC #3'
% ++ #' +' "#' @&' ++1&(' 1' (&,' '')&' H,&$'' &$-' #8' ' (' 8,#%' &, =87'')&^
%&' "#' %&' "#' '#% '$"&6' !#' +'' "1"&6' $' (' $22# '"6' (1, ' .' 5-&$+1,&6' ..2 /E' .'
+1!)' 5&,+#' +' $+' +' $>&+"?' +)$--' '') ' .' 8 '' "#' @&6' $' (' *)#' +)$--' $!B' #G 2!'
!#,(' .-?' @&' $' (' @&' +"?-&(' #%% ++ #'&,+' 8#,' '')&' 88$,+' #8' ' -'
$' (' &4&,?' '$!"%&' '"6' 5,#4 + #'6' $'''&,6' $' (') ' .' ,&-$'' ' .' "#' '')&'
#%% ++ #'&,+6' 8#,' '')&' 88$,+' #8' ' '' $'?' #'')&,' !'' #,' !"+'
!#''$ '&(6' +#' 8$,' $+' '')&' +$%&' $,&' '' 8#,!&' $' (' '#'' ,&2&$-&(' @?' #,'
,&21.'$''' "#'') +' !"6' +)$--' @&' (&&%&(' $' (' "$:&'' "#' @&' $22- !$@-&'
"#' '')&' #%% ++ #'&,+' "#' @&' '#% '$"&(' $+' $8#,&+$ (

' ' (' @&' '' &' $!"&(6')$'' '')&' #,(' 5,&+ (&'' #8' '')&9#7! #
#1' ! -6' '')&' #,(' 5, 4?' &$-6' '')&' ,+'' #,(' #8' '')&' ,&$+1,?6' '')&' (O O EE #^
5, ' ! 2$-' &!,&"$, &+' #8' "$"&6' $' (' '')&')$' !&--#,' #8' '')&' 9!)&C1&,' D/E
8#,' '')&' %&' @&' ' .' +)$--6' @?' 4 ,"1&' #8' '')&,' ,&+2&!'' 4&' 88 !&+6' @&'
$' (' '')&?' $,&')&,&@?' (&!-$,&(' "#' @&' #%% ++ #'&,+' 8#,' '')&' 88$,+'
#8' ' '' !#'>1' !'' #'' * '')' '')&' 5&,+#' +' "#' @&' '#% '$"&(' '' $'?'
+1!)' #%% ++ #'' $+' $8#,&+$ (6' $' (' '')&?' +)$--')$4&' '')&' +$%&' 5#*&,+
,&+2&!'' 4&-?' $+' 8' '')&?')$(' @&&'' &92,&++-?' '#% '$"&(' '' +1!)' #''B'
% ++ #'6' '' '')&' ,(&,' '' *) !)' '')&?' $,&')&,& '' %&'' #'&(6' '&9''
$8"&,' '')&' #%% ++ #'&,' 8 ,+'' '$%&(' '')&,& '

' '(

UQQ L L B ' ' (2C QV

Z '(#' # EE ID/E 026 . /O' 2' 2/G N

' '(' @&' '' &'$!"&(')$"' $'?' *#' #,' %#,&' #8' ")&' +$ (' #%% ++ #'&,+' +)$--' $'(' %$?' 8#,%' $' #$,(' 8#,' &9&!1" '.' ")&' +&4&,$-' 5#*&,+' *) !)' @?' ") +' !"6' #,' @?' $'?'#")&,' !"' #,' !"+6' $,&' #,' +)$--' @&' . 4&'' "#' #,' 4&+"&(' '' ")&' #%% ++ #'&,+' 8#,' ")&' 88$,+' #8' -' $'(' ")$"' ")&' #%% ++ #'&,' 8 ,+"' '$%&(' '' $'?' +1!)' &""&,+' 5$"&''' #,' #%% ++ #'7 8#,' ")&' %&' @& '.6' +)$--' @&' ")&' 5,&+ (&''' #8'")&' +$ (' #$,(' $'(' ")$"' *)&'' $'?' #$,(' +)$--' @&' 8#,%&(' '' ")&' @+&'!&' #8' ")&' 5,&+ (&'"6' ")&' #%% ++ #'&,' '&9"' '' #,(&,'#8' #% '$" #'' '' ") +' !"#,' '' ")&' +$ (' #%% ++ #'6 #8' ")#+&' *)#' +)$--' @&' 2,&+&'"6' +)$--' 8#"' ")$"' 1,' 2,&+ (&' $"' ")&' +$ (' #$,(

. /E3 #2ODG3 ' OD' /DE GD#3N' #' " ' OJ ED I HD' 37 D' #D&3' #' /GD/

' '(' @&' '' &'$!"&(6')$"' 8' ")&' #%% ++ #'&,+' 2,&+&''' $"' $'?' #$,(' +)$--' @&' &C1$--?' (4 (&(' '' 2 ' #'' * ")' ,&+2&!"' "#' $'?' $""&,' @?' ")&%' (+!1++&(6' ")&'' $'(' #'' &4&,?' +1!)' !!$+ #'' ") j' 5,&+ (&''6 #,' '') +' @+&'!&' ")&' #%% ++ #'&,' $!" '.' $+' +1!)6' +)$--')$4&' *#' <# !&+' #,' ")&' !$+" '.' <#"&

+/DO GD#3' 2#G' HH2E #27 å +/DE GD#3' 3 ' "2FD' 3"D' H2E3 #4' 3D

' '(')&' '' &'$!"&(6')$"' ")&' +$ (' #$,(' +)$--' $'(' %$?' '#% '$"&' $'(' $22# '' *#' &!,&"$, &+6' $'(' +1!)' #")&,' 88 !&,+' $+' +)$--' @&' '&!&++$,?6' "#' $""&'(' B12#'' ")&' +$ (' #$,(6' *)#' +)$--' @&' +1@>&!"' "#' 3 +% ++ #'' $"' ")&' 5-&$+1,&' #8' ")&' +$ (' C$,(' $'(' &$!)' #8' ")&' +$ (' &!,&"$, &+' +)$--')$4&' ")&' +$%&' 5#*&,+6' .)"+6' $'(' 5, 4 -&.&+' $+' @?' $'?' !"' #,' !"+' '#*' '' 8#,!&' $,&' <&+"&(' '' ")&') &8' &!,&"$,?' #8' ")&' #%% ++ #'&,+' 8#,' ")&' 8 ,+' #8' '-' $'(' ")$"' ")&' 5,&+ (&''' #8' ")&' +$ (' #$,(6' @1"' '#' #")&,' #%% ++ #'&,' $+' +1!)6' $'(' ")&' +$ (' &!,&"$, &+' $'(' #")&,' 88 !&,+6' +) $-' @&' 2$ (' @?' ")&' +$ (' #%2$'?' +1!)' 8 9&(' $-$;&+' $+' +' $>&+"?' +)$--6' @?' $'?' E$,,$'' #,' E$,,$'"+' 1'(&,') +' .'' $'1$-6' !#1'"&,+ .'&(' @?' ")&')$'!&--#,'#8' ")&' 9!)&C1&,' 8#,' ")&' %&' @& '.6' (,&!"

a/DE GD#.!' DH/D32/ DE!' 2#G' '7. HD/E' 3 ' OD' C2 G' EIH"' 272/ DE' 9#E 3"D' (/ Z#' E"277 G /DH3

< ' ' '(' @&' '' &'$!"&(6')$"' 8' $"' $'?' %&' ")&' +$ (' #$ +)$--' (&&%' '' &92&(&''' "#' ,&C1 ,&' ")& ,' &!,&"$, &+' $'(' #")&,' 88 !&,+' #8' ")&' $ (' #$,(6 #,' $`?' #8' ")&%6' "#' "$:&' $'' $")' #8' &!,&!?6' $'(' 8#,' ")&' 9&!1" #'' #8' ")&' 31" &+' #8' ")& ,' ,&+2&!"' 4&' "$" #'+6' '' +)$--' -$*81-' 8#,' ")&' +$ (' #$,(' "#' $(% ' +"&,' 6+1!)' $")' $+' ")&?' +)$--' 8,$%&' 8#,' ")&' 51,2#+&

HH/D7#/ DE' 2#G' '73 HD/E 3 '3#]D') 6 6' ' D' 2/' '

< ' '(' @&' '' &'$!"&(')$"' ")&' +$ (' #$,(' +)$--')$4&' $'(' @&' '4&+"&(' * ")' 81--' 5#*&,' $'(' 1")#, "?' "#' +12&, '' "&'(6' (,&!"6' $'(' !#'",#-' $--' !"+6' 2&,$" #'+6' $'(' #'!&,'+' #8' ")&' +$ (' #%2$'?' *) !)' ''$'?* +&' ,&-$"&' "#' #,' !#'!&,'' ")&' H#4&,'%&''' #,' &4&'1&+' #8' ")&' +$ (' &,, "#, &+6' #,' ")&' 5,#2&,"?')&,&@?' 4&+"&(' '' ")&' +$ (' #%2$'?' '' ,1+"' $+' $8#,&+$ (6' $'(' $--' H,$'"+' #8' $-$, &+6' H,$"1 " &+6' $'(' --#*$'!&+6' $'(' $--' #")&,' 5$?%&''+' $'(')$,.&+' *)$"&4&,6' #1"' #8' #,' 12#'' ")&' +$ (' &4&'1&+' $'(' 5,#2&,"?' ,&+2&!" 4&-?6' &9!&2"' $+')&,& 'B$8"&,' +' %&''' #'&(

"D' 2/G' .' (## E' O #D/E' 3 ' / #3/ 7 277 H3E' H #' /D/# #47#G 2!' 2#G' 3"D' QI7D' .'+/ CD/36

< ' '(' @&' '' &'$!"&(')$"' ")&' +&4&,$-' 5&,+#'+' *)#' #'' ")&' +$ (' *&'"?B+&!#'(' 3$?' #8' ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8#1,' +)$--' @&' #%% ++ #'&,+' 8#,' ")&' 88$,+' #8' ' $'(' &!,&"$, &+' $'(' 88 !&,+' #8' +1!)' #$,(' #8' #%% ++ #'&,+6' +)$--' !#'N " '1&' $'(' @&' #%% ++ #'&,+' 8#,' ")&' 8 $ '#8' ' $'(' &!,&"$, &+' $'(' 88 !&,+' #8' ")&' +$ (' #$,(' ,&+2&!" 4&-?6' * ")' ")&' +$%&' 5#*&,+ $'(

(OO EE #^ D/E!' DH/D' O/ D E!' 2#G' '.. HD/E!' #' G' C/ 7 Q !'3 'H #^ 3 #I D' I#3 7

' ' ;' B ' ' (2C'QV UQ

$'(' +1@>&!" "#' ")&' +$%&' &+", !" #'+' $+' "#' $-$, &+' $+' 8' ")&?')$(' 3"D /' C'
@&&'' $22# '"&(' @?' 4 ,"1&' #8' ") +' !"6' 1'" -' @?' ")&' ++1 ' .' #8' '&*' C #3O D#3E'
5$"&'"+6' #%% ++ #'+6' #,' #")&, * +&6' ")& ,' 22# '"%&'"+' +)$--' @&' \&W
,&+2&!" 4&-?' ,&4#:&(

< ' '(' @&' "' &'$!"&(6')$"' 86' 12#'' ")&' !!$+ #'' #8'"$: ' .' 5,#2, &'#,+'
$'?' $--#" #'' ")&' -&!" #'' #8' $' 3 ,&!"#,' #,' 3 ,&!"#,+' #8' ")&' +$ (' O 26' F 3D' O6'
#%2$'?6' $'?' 5,#2, &"#,6' *)# +)$--')&' ,&+ (&'" * ") '' ")&' V' "&('
D '.(#%6' +)$--6' @?' ,&$+#'' #8' @+&'!&6' --'&++6' #,' #")&, * +&6' @&' 3 ,&!"#,+'
(&+ ,#1+' #8' 4#" '.' @?' &""&,' #8' ""#,'&?6')&' +)$--' @&' $"' - @&,"?' +#
"#' (#6' 2,#4 (&(' ")$" +1!)' &""&,' #8' ""#,'&?' +)$--' '' &4&,?' $+&'
&92,&++' ")&' $%&' #,' $%&+' #8' ")&' $'(($"&' #,' $'(($"&+' 8#,'
*)#%' +1!)' 5,#2, &"#,' +)$--' @&' +#' (&+ ,#1+' #8' 4#" '.6' $'(' +)$--' @&'
&9&!1"&(' * ") '' &'' 3$?+' '&9"' @&8#,&' +1!)' -&!" #'' $'(' ")&'
""#,'&?' !#'+" "1"&(' 8#,' +1!)' 51,2#+&' +)$--' '' &4&,?' $+&' (&- 4&,'
")&' <#"&')&' +' +#' (,&!"&(' "#' . 4&' #2&'-?' "#' ")&' 5&,+#'' #,' 5&,+#'+'
*)# +)$--' @&' $1")#, L&(' @?' ")&' +$ (' #%2$'?' "#' ,&!& 4&' ")&' +$%&'
$'(' &4&,?' +1!)' <#"&' +)$--' @&' $!!#%2$' &(' @?' $'' 88 ($4 "' #,' 88 ,%N
$" #'' "#' @&' %$(&' @&8#,&' $' R1+" !&' #8' ")&' 5&$!&' @?' ")&' 5,#2, &"#,'
(,&!" '.' ")&' +$%&' +#' "#' @&' . 4&'6' "#' ")&' +$%&' #,' ")&' - :&' 88&!"' $+'
")&' $")' #,' 88 ,%$" #'' '#*' "$:&'' @?' 5,#2, &"#,+' 4#" '.' 12#'' $--#"+'
$"' H&'&,$-' #1,"+' #8' ")&' +$ (' #%2$'?6' $'(' '' *) !)' +1!)' 5,#2, &N
"#,' +)$--' $-+#' +"$"&' ")&' 3$?' #8' ")&' 9&!1" #'' #8' +1!)' &""&,' #8'
""#,'&?' $'(' $'?' 5&,+#'' %$: '.' $' 8$-+&' $")' #,' 88 ,%$" #'' @&8#,&'
$' R1+" !&' #8' 5&$!&' 8#,' ")&' 51,2#+&' $8#,&+$ (' +)$--' @&')&-(' "#')$4&'
")&,&@?' !#%% ""&(' * -81-' 5&,>1,?' $'(' 8' $'?' 5&,+#'' (#' 1'-$*81--?'
#,' !#,,12"-?' 2,#!1,&' #,' +1@#,'' $'?' #")&,' 5&,+#'' "#' "$:&' ")&' +$ ('
$")' #,' 88 ,%$" #'' @&8#,&' $' R1+" !&' #8' ")&' 5&$!&' $+' $8#,&+$ (6'
*)&,&@?')&' #,' +)&' +)$--' !#%% "' +1!)' * -81-' 5&,>1,?6' $'(' +)$--'
")&,&#8' @&' !#'4 !"&(6')&6' +)&6' #,' ")&?6' 8#,' &4&,?' +1!)' 888&'!&6' +)$--'
'!1,' +1!)' 5$ '+' $'(' 5&'$-" &+' $+' $,&' 2,#4 (&(' @?' $*' $.$ '+'
1@#,'$" #'' #8' 5&,>1,?' 7

< ' '(' @&' "' &'$!"&(6')$"' +#' %1!)' #8' ")&' !"' #8' ")&' =DCD27' .'
),"&&'")' &$,' #8' ")&' & .'' #8' D '.' ")&'),(6' '" "1-&(' =DE3/ H3 #' '
' ' ' '' ' ' ' ' '' ' *

' ' ' ' ' $+"' '($' * ' '$ ' ' '($' ' ' 1,#2&6' "#2#6' +D/E #
$+' &'$!"+' ")$"' '#' 5&,+#'' &%2-#?&(' '' $'?' 4 -' #,' -"$,?' "$" #'' DOC7 6DG' #
'' ")&' . ' ' '!-$ % '.' #,' &9&,! + '.' $'?' 5#*&,6' 1")#, "?6' 3"D' 2E3'%
#,' R1, +(!" #'' ")&,& '6' +)$--' @&' !$2$@-&' #8' @& '.' $22# '"&(' #,' !)#+&''
'"#' ")&' 88 !&' #8' 3 ,&!"#,' 1'" -' +1!)' 5&,+#'' +)$--')$4&' ,&"1,'&(' "#' * /DH3 /!'
$'(' @&&'' ,&+ (&'' '' . ' 8#,' ")&' 2$!&' #8' *#' &$,+6' +)$--' @&'
$'(' +')&,&@?' ,&2&$-&(] 5,#4 (&(6' ")$"' 8'")&' +$ (' #1,"' #8' 3 ,&!"#,+6' '.1. "2&,B'
* ")' ")&' #'+&'"' #8' ")&' +$ (' #$,(6' +)$--' (&!-$,&' +1!)' 5&,+#'' "2' @&' E #' "2E' I#'
$'' !!#1'"$'"' * ")' ")&' +$ (' #%2$'?6' $'(' ")$"') +' !!#1'"+' $,&' ED337DG' H'
1'+&""-&(6' #,' ")$"' $')$,.&' $.$ '+"' +1!)' 5&,+#'' +' 1'(&,' ")&' +B' 7
(&,$" #'' #8' ")&' +$ (' #1,"6' +1!)' 5&,+#'' +)$--' '#"' @&' !$2$@-&' #8' &- . @&8#,'
@&'.' !)#+&'' '"#' ")&' 88 !&' #8' 3 ,&!"#,' 8#,' ")&' &,%' #8' *#' &$,+' *4 - D2/E!'
$8"&,') +' &"1,'' "#' . ' 1'-&++' +1!)' !!#1'"+' +)$--' @&' +&""-&(6' 1'-&++' 3"D6'
#,' +1!)')$,.&' @&' (&! (&(' #'6' @&8#,&' ")&' 92 ,$" #'' #8' ")&' +$ ('
&,%

'V ' '(

(I/3 3 'GD7 ^ FD/ 3 ' 2/G (C DE . B #I3DE! H' .'(I/3E . 7a/ _P/ D3 /E 2#G* /DH3 /E! 2#G .'27 O23D/ 27 D33D/E 2#G * EC23H"DE

' (' @& " 812"@&,' &'$!"&(A)$" ")&' +$ (' #1," #8 3 B &!"#,+ +)$-- 8,#% %&' "# %&' (&- 4&,' "# ")&' +$ (' #$,(' #2 &+ #8 $-- '1"&+6 ,(&,+6 &+#-1" #'+6 $'(' 5,#!&&('.+ #8 $-- #1,"+ #8 5,#2, &"#,+6 H&'&,$- #,' 2&! $-6 $'(' #8 $-- #1,"+ #8 3 ,&!"#,+6 *") ' .)" 3$?+ $8"&,' ")&')#-('.' #8 +1!)' #1,"+ ,&+2&!" 4&-?6 $'(' $-+# #2 &+ #8 $-- &""&,76 (4 !&+6 $'(' 3 +2$"!)&+ *)$"&4&,' *) !)' +)$-- $" $'? %&' #,' %&+ @&' ,&!& 4&(' @?")&' +$ (' #1," #8 3 ,&!"#,+ #,' $'? #%% ""&& #8 3 ,&!"#,+6 $'(' *) !)' +)$-- @& %$"&, $- "# @&' !#%%1' !$"&(' "# ")&' +$ (' #$,(6 #,' *) !)' ")&' +$ (' #$,('+)$-- 8,#% %&' "# %&' ,&C1 ,&

) ' '..H 27 (O O I # H2^ 3 #E 3 'OD ED#3 O6 3"D (I/3 I#3 7 2CC/ FDG O6 3"D 2/GN

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'' *) !)' +)$--' @&' '!-1(&(' 1 ' / *' $8#,&+$ (6 "#' @&' +"?-&(' ")&' G F GDG' #3 '
5,&+ (&'!?' #8' 1 ' / *' '' (' $'(' ")&' #")&,' #8' +1!)' 5,!^ *#' +/DE '
+ (&'! &+' "#' @&' +"?-&(' ")&' 5,&+ (&'!?' #8' $'(' ")$" " +)$--' @&' E GD#H DE
-$*81-' 8#,' ")&' +$ (' #1," #8' 3 ,&!"#,+6 1'(&,' ")&' #'",#-' @?' ") +' "D' (I/3' 3 '
!" 2,#4 (&(6 $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6 "#' (&!-$,&' $'(' $22#' '")'8'+78,#%
*)$" 5$," #,' 5$,"+' #8' $'?' #8' ")&' &,, "#, &+' 1'(&,' ")&' H#4&,'%&'" %&"# 7&'
#8' ")&' +$ (' #%2$'?' +)$--' 8,#%' %&' "#' %&' @&' +1@>&!" "#' ")&' ")&' +&4&,$-'
H#4&,'%&'" #8' &$!)' #8' ")&' +&4&,$-' 5,&+ (&'! &+' '#*' +1@+ +" ' .' #,' "#' +/DE GD#H DE!'
@&' &+"$@- +)&(' $+' $8#,&+$ (6 $'(' 8,#%' %&' "#' %&6 $+' !!$+ #'' %$?
,&C1 ,&6 "#' ,&4#:&' $'(' $-"&,6 '' ")&' *)#-&' #,' '' 2$,"6 +1!)' 22# '"+'
%&'"6 $'(' +1!)' '&*' 3 +", @1" #'' #8' ")&' +$%&' $+' +)$--' @&' (&&%&('
&92&(&'"

' '(' @&' " &'$!"&(')$" ")&' 12&, '"&'(&'!&6 3 ,&!B' FD/#O D#3'
"#'6 $'(' #'",#-' #8' ")&' *)#-&' 4 -' $'(' -"$,?' H#4&,'%&'" #8' 48' '($'
$--' ")&' +$ (' &,, "#, &+' $'(' &4&'1&+' '' ' +)$--' @&' $'(' +')&,&@?
4&+"&(' '' $' H#4&,'#,' H&'&,$-' $'(' #1'+&--#,+6 "#' @&' +"?-&(' \')&'
H#4&,'#,' H&'&,$-' #8' (' '' #1'! -^

' '(' @&' " &'$!"&(6)$" ")&,&' +)$--' @&' #1,' ,('$,?' &%N "D/D' E"27'
@&,+' #8' ")&' +$ (' #1'! -6),&&' #8' *)#%' +)$--' 8,#-$ %&' "#' OD'. 2/'
%&' @&' $22# '"&(' @?' ")&' +$ (' #1," #8' 3 ,&!"#,+' 8,#%' $%#'.+" '/G#2/6'
+1!)' 5&,+#'+' $+' +)$--' @&' #,' +)$--')$4&' @&&'' &,4$'"+' #8' ")&' +$ ((I#H 77 /E!
#%2$'?' ' $'('&$!)' #8' ")&' +$ ( ),&&' ,('$,?' &%@&,+' #8' #1'! - "/DD' .'
+)$--' $" ")&' %&' #8') +' 22# '"%&'")$4&' @&&'' '' ")&' &,4 !&' #8' Z" 0' E"27
")&' +$ (' #%2$'?' 8#,' $" -&$+" &'' &$,+' $'(' 8')&' +)$--' @&' '' ")&' OD' D/F2#3E
-"$,?' &,4 !&' #8' ")&' +$ (' #%2$'?6)&' +)$--' '#" (1, ' .') +' .'3"D' (0^
#'" '1$'!&' '' 88 !&' $+' $' &%@&,' #8' #1'! -')#-(' $'?' -"$,?' C2#6
#%%$'(6 #,' @&' &%2-#?&(' '' $!"1$-' -"$,?' 3 1" &+' $'(' ")$" ")&') ' B 732/6'
#1,")' ,('$,?' &%@&,' #8' #1'! -' +)$--' 8,#%' %&' "#' %&' @&' '..HD/' 3 '
$22# '"&(' 8,#%' $%#'.+" 5&,+#'+' *)#' +)$--' '#" @&' &,4$'"+' #8' ")&' " 7G' 2#6'
+$ (' #%2$'?' @?' ")&' +$ (' #1," #8' 3 ,&!"#,+6 +1@>&!" "#' ")&' 22,#N (0 02#G'
@$" #'' #8' +' $>&+"?6 "#' @&' + .' 8 &(' '' E, " '.' @?' +' #?$-' .'' Z" 7E3' 2'
$'1$-6 !#1'"&,+ .'&('@?' ")&' 5,&+ (&'" #8' ")&' +$ (' #$,(' 2,#4 (&(' BDOOD/
")$" +1!)' -$+"B%&'" #'&(' &%@&,' #8' #1'! -' +)$--' '#" @&' &'"-&(' "#' "D' A I/3"
+ "#,'4#"&' '' ")&' +$ (' #1'! -' &9!&2" $" &&" ' .+' ")&,&#8' 8#,' %$:' ' .' BDOOD/' #3'
$*+' $'(' &.1-$" #'+' ' $'(' "+)$--')&' -$*81-' 8#,' ")&' +$ (' #1," #8' 3 ' OD' 2C^
3 ,&!"#,+' "#' $22# '"")&' #%%$'(&,B 'B) &8' #8' ")&' #%2$'?;+' #,!&+' C #3DG' ./ 0'
'' $'(' 8' ")&,&' +)$--' @&' '#' +1!)' #%%$'(&,B 'B) &86 #,' ")&' 3"D' (0^
88 !&+' #8' +1!)' #%%$'(&,B 'B) &8' $'(' #8' H#4&,'#,' H&'&,$-' C2#6aE' D/^
+)$--' @&' 4&+"&(' '' ")&' +$%&' 5&,+#'6 ")&'' ")&' #%%$'(&,B 'B) &8' F2#3E!
#8' ")&' #,!&+' #'' ")&' (' +"$@- +)%&'"6 "#' @&' $'' 9",$#,('$,?'
/ ' ; &%@&,

U ' L $ B ' ' (2C QVN

&%@&,' #8' ")&' +$ (' #1'! -6' $'(' +1!)' 9",$#,('$,?' &%@&,' #8' #1'! -' +)$--')$4&' $')' $'(' 5,&!&(&'!&' $'" ")&' #1'! -' #$,(' '&9" $8"&,' ")&' H#4&,'#,' H&'&,$-

FD/# /' 3 D#D/27' 2#G' .'(I#H #' G' C/7' Q '3 'OD' #' I#GD/' 3" E' H3

' '(' @&' "' &'$!"&(6')$"' ")&' 5&,+#'' *)#' +)$--' @&' H#4&,'#,' H&'&,$-' #8' ")&' 5,&+ (&'!?' #8' &> ' / < ' '' (' #'' *&'"?B+&!#'(' 3$?' #8' ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8#1,' +)$--' @&' ")&' ,+" H#4&,'#,' H&'&,$-' #8' ' 1'(&,' ") +' !"6' $'(' +1!)' 5&,+#'+' $+' +)$--' @&' &%@&,+' #8' #1'! -' #8' ")&' +$%&' 5,&+ (&'!?' #'' ")$" 3$?' +)$--' @&' ,&+2&!" 4&-?' &%@&,+' 28' ")&' #1'! -' !#'+" "1"&(' @?' ") +' !"

? 77 #4' IC' 2H2#H DE' # 3"DED' '.. HDEF'

' '(' @&' "' &'$!"&(6')$"' $--' <$!$'! &+')$22&' '.' '' ")&' 88 !&' #8' H#4&,'#,' H&'&,$-' #8' ')$--' 8,#%' %&' "#' %&' @&' .5>DG' 12' @?' ")&' +$ (' #1,"' #8' 3 ,&!"#,+6' +1@>&!" "#' ")&' 22,#@$" #'' #8' +' $>&+"?6' "#' @&' + .' 8 &(' '' E , " '.' @?' +' #?$-' .'' $'1$-6' !#1'"&,+ .'&(' @?' ")&' 5,&+ (&'" #8' ")&' +$ (' #$,(

"D FD/# /' D#D/27' #' (I#H 7' DO^ C ZD/DG' 3 ' 73 4 J7 ID' . /' #G 2!' D&HDC3' >'3 ' B 233D/E' "D/D #' OD#^ 3 #DG

' '(' @&' "' &'$!"&(6')$"' ")&' +$ (' H#4&,'#,' H&'&,$-' '' #1'! -' +)$--')$4&' 5#*&,' "#' %$"&' $*+' $'(' &.1-$" #'7' 8#,' ,&2&$-N '.6' $%&'('.6' #,' $-"&, '.' $'?' $*+' #,' &.1-$" #'+' *)$"&4&,' '#*' '' 8#,!&' #,')&,&$8"&,' "#' @&' '' 8#,!&' '' ")&' +$ (' &,, "#, &+' #,' $'?' 5$,"' ")&,&#86' $'(' "#' %$:&' $*+' $'(' &.1-$" #'+' 8#,' $--' 5&,+#'+6' *)&")&,' ('#,' $" 4&6' #,& .'&,+' ,' #")&,+6' $'(' 8#,' $--' #1,"+' #8' R1+" !&6' *)&")&,' &+"$@- +)&(' @?' +' $>&+"?;+')$,"&,+' #,' #")&,* +&6' $'(' ")&' R1, +(!" #'+' ")&,&#86' $'(' 8#,' $--' 5-$!&+' $'(') '.+' *)$"+#&4&,' * ") '' $'(' "),#1.)#1" ")&' *)#-&' $'(' &4&,?' 5$," #8' ")&' +$ (' &,, BA' "#, &+6' $'(' 8#,' $--' &,4$'"+' #8' ")&' +$ (' #%2$'?' * ") '' ")&' 3#% N '#'+' #8' 5, '!&+' $'(' "$"&+' '' $-- $'!&' * ")' ")&' +$ (' #%2$'?' ' +$4&' $'(' &9!&2" ")$" ")&' +$ (' H#4&,'#,' H&'&,$-' '' #1'! -' +)$--' '#")$4&' ")&' 5#*&,' #8' %$: '.' $'?' $*+' #,' &.1-$" #'+' *) !)' +)$--' '' $'?' *$?' ,&2&$-6' 4$,?6' +1+2&'(6' #,' $88&!" $'?' #8' ")&' 5,#4 + #'+' #8' ") +' !"6' #,' $'?' #8' ")&' 5,#4 + #'+' #8' ")&' !"+' 8#,' 21' +) '.' 1" '?' $'(' 3&+&," #'' #8' 88 !&,+' $'(' #-(&,+6' *)&")&,' '' ")&' &,4 !&' #8' +' $>&+"?' #,' ")&' +$ (' #%2$'?6' #,' $'?' 5,#4 + #'+' #8' $'?' !")&,&$8"&,' "#' @&' 2$++&(' '' $'?* +&' $88&!" '.' ")&' +$ (' #%2$'?' #,' ")&' +$ (' &,, "#, &+' #,' ")&' ')$@ "$'"+' ")&,&#86' #,' $'?' $*+' (,' &.1-$" #'+' *) !)' +)$--' '' $'?' *$?' $88&!" $'?' 5,&,#.$" 4&' #8' ")&' ,#*' '6' #,' ")&' 1")#, "?' #8' 5$,- $%&'"6' #,' ")&' #'+" "1" #'' #,' ")&' +$ (' #%2$'?6' #,' $'?' 5$,"' #8' ")&' 1'*, ""&'' $*+' #,' #'+" "1" #'' #8' ")&' V' "&(' D '.(#%' #8' ' (' $'(' ' *)&,&#'' %$?' (&2&'(' '' $'?' 3&..&' ")&' --&. $'!&' #8' $'?' 5&,+#'' "#' ")&' ,#*' '' #8' ")&' V' "&(' D '.(#%6' #,' ")&' #4&,& '"?' #,' 3#% ' #'' #8' ")&' +$ (' ,#*' '' #4&,' $'?' 5$,"' #8' ")&' +$ (' &,, "#, &+6

.' 7 D' (I/3' .' * /DH3 /E 2ZE FD/ ' / #(I#H 7' 3 ' /DCD27' 3"DO

< ' 5,#4 (&(' $-*$?+6' $'(' @&' "' &'$!"&(6')$"' '' !$+&' ")&' +$ (' #1,"' #8' 3 ,&!"#,+6' 1'(&,' +1!)' #'",#-' $+' @?' ") +' !"' +2,#4 (&(6' .' 8?' "#' ")&' +$ (' H#4&,'#,' H&'&,$-' '' #1'! -' ")&' ,' R +$--#EB' $'!&' #8' $'?' $*+' #,' &.1-$" #'+' @?' ")&' +$ (' H#4&,'#,' H&'&,$-' ' #1'! -' %$(&6' ")&' '' $'(' '' &4&,?' +1!)' $+&6' 12#'' &!& 2" @?' ")&' +$ (' H#4&,'#,' H&'&,$-' '' #1'! -' #8' #" !&' #8' +1!)' 3 +$--#*$'!&6 /' ' ")&

$ B ʻ ʻ (2C!ʻQV U V

")&ʻ +$ (ʻ H#4&,'#,ʻ H&'&,$-ʻ 'ʻ #1'! -ʻ +)$--ʻ 8#,") * ")ʻ ,&2&$-ʻ $--ʻ $*+ʻ
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-$" #'+ʻ %$(&ʻ $+ʻ $8#,&+$ (6ʻ +#ʻ -#'.ʻ $+ʻ ")&?ʻ +)$--ʻ ,&%$ 'ʻ 1',&2&$-&(6ʻ 2ZEʻ 2#Gʻ
+)$--ʻ @&ʻ #8ʻ")&ʻ +$%&ʻ #,!&ʻ $'(ʻ 88&!"ʻ * ") 'ʻ $'(ʻ"),#1.)#1"ʻ ")&ʻ +$ (ʻ =D41723 #Eʻ
&,, "#, &+ʻ $+ʻ $'?ʻ !"ʻ #8ʻ 5$,- $%&'"ʻ *#1-(ʻ #,ʻ #1.)"ʻ "#ʻ @&ʻ * ") 'ʻ 3ʻ ODʻ .ʻ 3"Dʻ
")&ʻ +$%&ʻ &,, "#, &+6ʻ $'(ʻ +)$--ʻ @&ʻ "$:&'ʻ '#" !&ʻ #8ʻ @?ʻ $--ʻ #1,"+ʻ #8ʻ E2##Dʻ A /HDʻ
R1+" !&ʻ *)$"+#&4&,ʻ * ") 'ʻ ")&ʻ +$%&ʻ &,, "#, &+6ʻ 'ʻ ")&ʻ +$%&ʻ $''&,ʻ 2Eʻ 2#6ʻ H3ʻ .ʻ
$+ʻ $'?ʻ 51@- !ʻ !"ʻ #8ʻ 5$,- $%&'"ʻ *#1-(ʻ $'(ʻ #1.)"ʻ "#ʻ @&ʻ "$:&'ʻ +2/7 2 0 D#3
'#" !&ʻ #8ʻ $'(ʻ "ʻ +)$--ʻ '#"ʻ @&ʻ '&!&++$,?ʻ "#ʻ ,&. +"&,ʻ #,ʻ 21@- +)ʻ 'ʻ =D4 E3/23 #
$'?ʻ #1,"ʻ #8ʻ R1+" !&ʻ $'?ʻ $*+ʻ #,ʻ &.1-$" #'+ʻ %$(&ʻ @?ʻ ")&ʻ +$ (ʻ I##DHDEE2/
H#4&,'#,ʻ H&'&,$-ʻ 'ʻ #1'! -

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-$*81-ʻ 8#,ʻ ")&ʻ +$ (ʻ H#4&,'#,ʻ H&'&,$-ʻ 'ʻ #1'! -6ʻ * ")#1"ʻ ")&ʻ 2 ;&4 #1+ʻ 3"Dʻ + ZD/ʻ `8
$'!" #'ʻ #8ʻ ")&ʻ +$ (ʻ #1,"ʻ #8ʻ 3 ,&!"#,+6ʻ "#ʻ %$:&ʻ $'?ʻ $*ʻ #,ʻ &.1Bʻ 2&$7)ʻ
-$" #'ʻ *)&,&@?ʻ 5#*&,ʻ +)$--ʻ @&ʻ . 4&'ʻ "#ʻ $'?ʻ #1,"+ʻ #8ʻ R1+" !&6ʻ #")&,ʻ 1,#2&$"ʻ
")$'ʻ ")&ʻ #1,"+ʻ #8ʻ R1+" !&ʻ &+"$@- +)&(ʻ @?ʻ +ʻ $>&+"?;+ʻ)$,"&,+6ʻ "#ʻ I O5DH3E!ʻ Hʻ
+&'"&'!&ʻ "#ʻ ")&ʻ 51' +)%&'"ʻ #8ʻ 3&$")ʻ $'?ʻ #8ʻ +ʻ $>&+"?;+ʻ '$"1,$-Aʻ
@#,'ʻ 1@>&!"+ʻ @#,'ʻ 'ʻ . ʻ #,ʻ ")&ʻ) -(,&'ʻ #8ʻ +1!)ʻ 1@>&!"+6ʻ #,ʻ
*) !)ʻ +)$--ʻ $@#- +)ʻ $'?ʻ #8ʻ ")&ʻ #1,"+ʻ #8ʻ R1+" !&ʻ &+"$@- +)&(ʻ @?ʻ +6
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$+ʻ ")&?ʻ +)$--ʻ (&&%6ʻ &92&(&'"ʻ ʻ ʻ > ʻ ʻ ʻ ʻ
H&'&,$-ʻ 'ʻ #1'! -ʻ ʻ ʻ' ʻ ʻ .8 ʻ ʻ ʻ> $ ʻ B#$ ʻ ʻ
1'!" #'+6ʻ $'(ʻ 31" &+ʻ %2#+&(ʻ #"ʻ #,ʻ 4&+"&(ʻ 'ʻ) %ʻ @?ʻ 4 ,"1&ʻ #8ʻ") +ʻ ")&ʻ H#4&,'#,ʻ
!"6ʻ #,ʻ "#ʻ @&ʻ %2#+&(ʻ #,ʻ 4&+"&(ʻ 'ʻ) %ʻ @?ʻ $'?ʻ #")&,ʻ !"ʻ #,ʻ !"+ʻ ʻ '#17!--^
) !)ʻ 1-&+ʻ +)$--ʻ 2,&+!, @&ʻ ")&ʻ #(&+ʻ 'ʻ> * ʻ ʻ$'?ʻ $+ʻ
#,ʻ &.1-$" #'+ʻ "#ʻ @&ʻ %$(&ʻ @?ʻ ")&ʻ +$ (ʻ H#4&,'#,ʻ H&'&,$-ʻ 'ʻ #1'! -6ʻ
$'(ʻ #8ʻ ")&ʻ 1")&'" !$"#'ʻ #8ʻ $--ʻ !"+ʻ $'(ʻ 5,#!&&(ʻ '.+ʻ *)$"+#&4&,ʻ #8ʻ
")&ʻ +$ (ʻ H#4&,'#,ʻ H&'&,$-ʻ 'ʻ #1'! -ʻ $'(ʻ +1!)ʻ 1-&+6ʻ *)&'ʻ $2N
2,#4&(ʻ @?ʻ ")&ʻ +$ (ʻ #$,(ʻ #8ʻ #%% ++ #'&,+6ʻ +)$--ʻ @&ʻ #8ʻ ")&ʻ +$%&ʻ
#,!&ʻ $+ʻ 8ʻ")&?ʻ)$(ʻ@&&'ʻ '+&,"&(ʻ 'ʻ ") +ʻ !"ʻ 5,#4 (&(ʻ $-*$?+6ʻ ")$"ʻ 1-&+ʻ "#ʻ @&ʻ
+1!)ʻ 1-&+ʻ +)$--ʻ @&ʻ -$ (ʻ @&8#,&ʻ @#")ʻ #1+&+ʻ #8ʻ 5$,- $%&'"ʻ 'ʻ ")&ʻ @&8#,&
&++ #'ʻ '&9"ʻ $8"&,ʻ ")&ʻ 22,#4$-ʻ ")&,&#8 +2/7 2 0 D#3

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&.1-$" #'+ʻ +)$--ʻ @&ʻ %$(&ʻ $"ʻ +#%&ʻ &&" '.ʻ #8ʻ ")&ʻ #1'! -ʻ $"ʻ *) !)ʻ FD/# /!ʻ
")&ʻ +$ (ʻ H#4&,'#,ʻ H&'&,$-ʻ $'(ʻ $"ʻ -&$+"ʻ),&&ʻ #8ʻ ")&ʻ ,('$,?ʻ &%@
@&,+ʻ #8ʻ #1'! -ʻ +)$--ʻ @&ʻ $++&%@-&(6ʻ $'(ʻ ")$"ʻ $--ʻ #")&,ʻ 1'!" #'+ʻ #8ʻ BDOOD/Eʻ
")&ʻ +$ (ʻ H#4&,'#,ʻ H&'&,$-ʻ 'ʻ #1'! -ʻ %$?ʻ @&ʻ &9&,! +&(ʻ @?ʻ ")&ʻ +$ (ʻ]ʻ(Z H7!
H#4&,'#,ʻ H&'&,$-ʻ $'(ʻ '&ʻ #,ʻ %#,&ʻ ,('$,?ʻ &%@&,ʻ #,ʻ &%@&,+ʻ
#8ʻ #1'! -6ʻ $'(ʻ ")$"ʻ 'ʻ &4&,?ʻ $+&ʻ #8ʻ 3 88&,&'!&ʻ #8ʻ 2 ' #'ʻ $"
&&" '.+ʻ #8ʻ ")&ʻ +$ (ʻ #1'! -ʻ *)&,&ʻ ")&,&ʻ +)$--ʻ @&ʻ $'ʻ C1$- "?ʻ #8ʻ
<# !&+ʻ ")&ʻ +$ (ʻ H#4&,'#,ʻ H&'&,$-ʻ +)$--ʻ)$4&ʻ *#ʻ <#"&+ʻ #,ʻ ")&
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ʻ 5,#4 (&(ʻ $-*$?+6ʻ $'(ʻ @&ʻ "&'$!"&(ʻ)$"ʻ *)&'ʻ $'(ʻ +#ʻ #8"&'ʻ B2##D/ʻ .ʻ
$+ʻ $'?ʻ &$+1,&ʻ +)$--ʻ @&ʻ 2,#2#+&(ʻ @&8#,&ʻ ")&ʻ +$ (ʻ H#4&,'#,ʻ H&'&,$-ʻ +/DDDDG0 4ʻ
'ʻ #1'! -ʻ *)&,&@?ʻ ")&ʻ $8&"?6ʻ ,$'C1 -- "?ʻ #,ʻ '"&,&+"+ʻ #8ʻ ")&ʻ (
5#++&++ #'+ =

2,#2#+&(5#++&++ #'+' '' '#,'$'?'5$,'"")&,&#8' $,&' #,'%$?'@&' '' ")&'R1(.B'
%&'" #8'")&' +$ (' H#4&,'#,' H&'&,$-' &++&'" $--?' $88&!"&(' $'(' ")&' +$ ('
+D2HD' .' H#4&,'#,' H&'&,$-' +)$--' @&' #8' #2 ' #'' & ")&,' ")$" ")&' &$+1,&' +#
#G 2' 0 26OD' 2,#2#+&(' #1.)" "#' @&' $(#2"&(' #,' !$,, &(' '"#' &9&!1" #'' #,' ")$" ")&'
DEED#3 2776' +$%&' #1.)" "#' @&' +1+2&'(&('#,' *)#--?' ,&>&!"&(' $'(' ")&' $>#, "?' ''
2..DH3DG #1'! -' ")&'' 2,&+&'" +)$--' (88&,' '' $'(' (++&'" 8,#%' +1!)' 2 ' #''
")&' +$ (' H#4&,'#,' H&'&,$-' $'(' &,'@&,+' #8' #1'! -'$,&')&,&@?'
(,&!"&(' 8#,") * ")' %1"1$--?' "#' &9!)$'.&' * ")' $'(' !#%%1' !$"&' "#'
&$!)' #")&,' '' E, " '.' 1'(&,' ")&,' ,&+2&!" 4&' $'(+' "#' @&' ,&!#,(&('
$"' -$,.&' #'' ")&,' &!,&" #'+1-"$" #'+' ")&' H,#1'(+' $'(' &$+#'+' #8'
")&,' ,&+2&!" 4&' 2 ' #'+' $'(' 8' $8"&,' !#'+ (&, '.' ")&' +$,#&' ")&'
+$ (' H#4&,'#,' H&'&,$-' $'(' ")&' $>#, "?' '' #1'! -' +)$--' +" --' (88&,'
'' 2 ' #'' " +)$--' @&' -$*81-' 8#,' ")&' +$ (' H#4&,'#,' H&'&,$-' #8') '
#*'' 1")#, "?' $'('#'') +' #*'' &+2#'+ @ - "?' "#' +1+2&'(' #,' ,&>&!" ")&'
< &$+1,&' +#' 2,#2#+&(' ,' 2$," #,' '' *)#-&' #,' "#' $(#2" $'(' &$,-?' ")&'
&$+1,&' +#' 2,#2#+&(' '"#' &9&!1" #'' $+' ")&' +$ (' H#4&,'#,' H&'&,$-'
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%&' "# %&' @&' $22# '"&(' ")&' +$ (' H#4&,'#,+' '' ")& ,' ,&+2&!" 4&' #1'! -+6' +)$--')$4&' $--' ")&' .)"+6' 5#*&,+6' 31" &+6' 1'!" #'+6' $'(' %%1' " &+' *)$"+#&4&,6' '#" '' $'?* +&' ,&21.'$'' "#' ") +' !"6' *) !)' ")&' H#4&,'#,+' #8' 1 ' ' ' $'(' (*" ' '' ")& ,' ,&+2&!" 4&' #1'! -+' '#*')$4&' * ") '' ")& ,' ,&+2&!" 4&' 5,&+ (&'! &+' ' $'(' ")$" ")&' H#4&,'#,+' $'(' &%@&,+' #8' #1'! -' #8' 5,&+ (&'! &+' $22# '"&(' @?' #,' 1'(&,' ") +' !" +)$--' +&4&,$--?')$4&' $--' ")&' .)"+6' 5#*&,+6' $'(' %%1' " &+' ,&+2&!" 4&-?6' '#" '' $'?* +&' ,&21.'$'' "#' ") +' !"6' *) !)' ")&' H#4&,'#,+' $'(' &%@&,+' #8' #1'! -' #8' ")&' 5,&N + (&'! &+' #8' 1 ' ' ' $'(' (*" ' ,&+2&!" 4&-?' '#*')$4&' '' ")& ,' ,&+2&!" 4&' 5,&+ (&'! &+' ' 2,#4 (&(' ")$" '#' H#4&,'#,' #,' H#4&,N '#,' '' #1'! -' +)$--')$4&' ")&' 5#*&,' #8' %$: '.' #,' +1+2&'('.'$'?' &.1-$" #'+' #,' $*+' ''$'?' $+&' *)$"&4&,6' 1'-&++' '' $+&+' #8' 1,.&'' &!&++ "?' X")&' 1,")&'' #8' ")&' 5,##8' *)&,&#8' +)$--' @&' #'' +1!)' H#4&,'#,' #,' H#4&,'#,' '' #1'! -[6' $'(' ")&'' #'-?' 1'" -' ")&' 3&! +#'' #8' ")&' H#4&,'#,' H&'&,$-' #8' ' '' #1'! -' +)$--' @&' + .' 8 &(' ")&,&#'' ' $'(' 2,#4 (&(' $-+#6' ")$" '#' H#4&,'#,' #,' H#4&,'#,' '' #1'N !-' +)$--')$4&' ")&' 5#*&,' #8' !,&$" '.' $'?' '&*' 88 !&6' #,' .,$'" '.' $'?' $-$,?6' H,$"1 "?6' #,' --#*$'!&6' * ")#1'" ")&' 2,&4 #1+' $'!" #'' #8' ")&' H#4&,'#,' H&'&,$-' #8' ' '' #1'! -

' 5,#4 (&(' $-*$?+6' $'(' @&' "' &'$!"&(6')$" *)&'' $'(' +#' #8"&'' $+' ")&' +$ (' #1," #8' 3 ,&!"#,+' +)$--' '&.-&!" 8#,' ")&' 2$!&' #8' *#' $-&'($,' #'")+6' "#' @&' !#%21"&(' 8,#%' ")&' 3$?' *)&,&#'' ")&' #" 8 N !$" #'' #8' ")&' <$!$'!?' #8' $'?' 88 !&' #,' %2-#?%&'' '' ' '' ")&' 22# '"%&'' #8' ")&' +$ (' #1," +)$--')$4&' @&&'' ,&!& 4&(' @?' ")&' +$ (' #1,"6' "#' +122-?' +1!)' <$!$'!?6' ")&'' $'(' '' &4&,?' +1!)' $+&' '' +)$--' @&' -$*81-' 8#,' +' $>&+"?' "#' $22# '"6' @?' E, " '.' 1'(&,' +' .'' $'1$-6' +1!)' 5&,+#'' $+' +' $>&+"?' +)$--' ") ' :' 2,#2&,' "#' +122-?8' +1!)' <$!$'!?' $'(' ")$" &4&,?' 5&,+#'' +#' $22# '"&(' +)$--')$4&' ")&' +$%&' 5#*&,+6' 5, 4 -&.&+6' $'(' 1")#, " &+' $+' 8')&' #,' ")&?')$(' @&&'' $22# '"&(' @?' ")&' +$ (' #1,"6' $'(' +)$--' '#' @&' +1@>&!" "#' &%#4$-' #,' 3 +% ++$-' * ")#1' ")&' 22,#@$" #'' $'(' #'+&'' #8' +' $>&+"?

' '(' @&' "' &'$!"&(')$" "' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #1," #8' 3 ,&!"#,+' "#' $22# '' $'?' 5&,+#'' #,' 5&,+#'+' 2,#4 + #'$--?' "#' +1!!&&(' "#' $'?' #8' ")&' 88 !&+' $8#,&+$ (6' 8#,' +122-?' '.' $'?' <$!$'!?' #,' <$!$'! &+' ")&,& '6' *)&'' ")&' +$%&' +)$--')$22&'' @?' ")&' 3&$")' #,' &+ .'$" #'' #8' ")&' 5&,+#'' #,' 5&,+#'+')#-('.' ")&' +$%&' 88 !&' #,' 88 !&+' ,&+2&!" 4&-?6' #,') +' #,' ")& ,' 3&2$,"1,&' 8,#%' ' * ")' '"&'' "#' ,&"1,'' #,' ' #,' #' '.&'!?' &9N 2,&++&(' '' $'?' +1!)' 2,#4 + #'$-' 22# '"%&'' #,' 22# '"%&'"+' "#' ")&' +$%&' ,&+2&!" 4&-?6' $'(' +1!)' 22# '"&+' $.$ '' "#' ,&4#:&' 5,#N 4 (&(' ")$" &4&,?' 2,#4 + #'$-' 22# '"%&'' "#' ")&' +&4&,$-' 88 !&+' #8' H#4&,'#,' H&'&,$-' #8' ' H#4&,'#,' #8' $' 5,&+ (&'!?6' $'(' ")&' &%@&,' #8' #1'! -' #8' ' @?' ") +' !" (,&!"&(' "#' @&' $22# '"&(' "#' +1!!&&(' 8,#%' $%#' '.+' 5&,+#'+' *)#' +)$--' '#' @&' &,4$''+' #8' ")&' +$ (' #%N 2$'?6' +)$--' @&' +1@>&!"' "#' ")&' 22,#@$" #'' #8' +' $>&+"?6' "#' @&' + .' 8 &(' $+' $8#,&+$ (6' @1" ")$" '#' 5&,+#'' '#' $22# '"&(' "#' +1!!&&(' 2,#4 + #'$--?' "#' $'?' #8' ")&' +$ (' 88 !&+' +)$--' @&' &'" "-&(' "#' $'?' 1")#, "?6' $-$,?6' #,' %#-1%&'' $22&,"$ ' '.' ")&,&"#' 1'" -')&' +)$--' @&' ") ' ")&' $!"1$-' 5#++&++ #'' #8' +1!)' 88 !&

.'3"D'C/DED#3' FD/# /E' .' B2G/2E' 2#G' ? #O26!' "I3' # 3' 3 ' O2]D' 2ZE' /' 4/2#3' B #D6!

.' (I/3' .' 'J * /DH3 /E' #D47DH3' . /' Z ' B #3"E' 3 'EICC76' 2H2#H6' #' 2#6' ' .. HD!' 3"D' ? #4' 3 ' 2CC #3

ZD/' . /' 3"D' (I/3' 3 ' O2]D' C/ ^ F E #27' C^ C #3 O D#3E' 3 '2#6' ' .. HDE

+/ F E #27' CC #3^ O D#3E' .'HD/^ 32 #' ' .. HD/E' 3 ' OD' 2C ' C/ FDG' O6' > E' B25DE36

L' ' $ B' ' 2C!QV

#' H2ED' .' %2H2#H6' #' 3"D' ' . . HD' .' FD/# /' D#D# 7!' 2#G' #' ' IHHDEE /' IC #' 3"D' 9 C 3!' 3"D' ' /G #2/6' BDOOD/' .' (I#H 7' #D&3' #' =2#]' 3 ' 2H3' 2E' FD/^ # /' D#D/27

' '(' @&' '' &'$!"&(6' -$"' 8'$'?' I $'!?'+)$ ')$22&'' $")&' 88 !&' #8' H#4&,'#,' H&'&,$-' UM' ' *)&'' Y(' 2,#? 7 #'$-' J ' - ")8&,' 1!!&++#,' +)$--' @&' 12#'' ")&' 2#'' "#' +122-?' +1!)' <$#$$!?6' ")&'' $'(' '' &4&,?' +1!)' $+&' ")&' ,('$?' & 1@&8' 8' # '!V 2&9" '' $')'"#' ")&' +$ (' H#4&,'#,' H&'&,$-' +)$--'6)#-('$'(' &9&!1"&' ")&' +$ (' 88 !&6' #8' H#4&,'#,' H&'&,$-' #8' +' * ,' H#4&,'#,' #8' ")&B5,&+ (&'!?' #8' 1 ' / *' '' ('1'" -' $' 1!!&++#,' +)$--'$,, 4&6'6#,' 1'" -' +#'>&' #")&,' 5&,+#'' #'' ")&' 2#'' +)$--' @&' (1-?' $22# '"&(' ")&,&"# 1$'(' ")$" &4&,?' +1!)' !" ' .' H#4&,'#,' H&'&,$-' +)$--6' (1, ' .6' ")&' >"'& #8') +' ! 'A' " ' ' ' .' "#' $!'' $+' +1!)6')$4&' $'(' &9&,! +&' $--' ")&' .)"+' $'(' 5#*&,+' #8' H#4&,'#,' H&'&,$-' ' ` '$'(B+)$-8' @&' &'" "-&(B"#'' ,&!& 4&' ")&' ,$#-1," &'"+' $'(' (4$'"$.&+6' $22&,"$ ' ' .' "#' ")&' 88 !&' @?') %' +122- &(6' +1!)' !" ' .' H#4&,'#,' H&'&,$-' 8#,&.# ' .') +' $-$,?' $'(' --#*$'!&' #8' $' &%@&,' #8' #1'! -' 8#,' ")&' +$%&' 5&, #(B

#' H#ED' .' 2' 2H2#H6' #' 3"D' ' . . HD' .' M. FD/ /' .' 2#6' .' 3"D' EIO /G #23D' +/DE GD#H DE!' 2#G' #' ' C/ ^ F E #27' /' 3"D/' IH ' HD3 E /' #' 3"D' 3 C I

B' '(' @&' '' &'$!"&(6)$'' 8'$'?' <$!$'!?' +)$--6')$22&'' ''")&' 88 !&' #8' H#4&,'#,' #8' 1 ' J+ ' ' *" '#,' ' =*)&'' '#' 2,#4 + #'$-' #,' #")&,' 1!!&++#,' +)$--' @&' 12#'' ")&' 2#'' "#' +122-?' +1!)' <$!$'!?6' ")&'' $'(' '' &4&,?' 7 !)' $+&6' 8' ")&,&' +)$--' @&' $' #1'! -' '' ")&' 5,&+ (&'!?' '' *) !)' +1!)' <$!$'!?' +)$--')$22&'6' ")&' &' @&,' #8' +1!)' #1'! -6' *)#' +)$--' @&' '&9'' '' $':' "#' ")&' H#4&,'#,6' #")&,' ")$'' ")&' #%%$'(&,' '') &8' #,' (&&,' ! %'$ ('.' ")&' #,!&+' ' +1!)' 5,&+ (&'!?6' $'(' 8'")&,&')$--' @&' '#' #1'! -6' ")&'' ")&' &!,&"$,?' #8' H#4&,'%&''' #8' ")&' +$ (' 5,&+ (&'!?' *)#')$--' @&' +&' #,' '' ")&' +$ (' 88 !&' #8' &!,&"$,?6' +)$--')#-('$'(' &9&!1"&' ")&' +$ (' 88 !&' #8' H#4&,'#,' 1'" -' $' 1!!&++#,' +)$--' $,, 4&6' #,' 1'" -' +#%&' #")&,' 5&,+#'' #'' ")&' 2#'' +)$--' @&' (1-?' $22# '"&(' ")&,&"# ' $'(' ")$'' &4&,?' +1!)' '" ' .' H#4&,B' '#,' +)$--6' (1, ' .' ")&' %&' #8' 8$+' !#'" '1 ' .' "#' $!'' $+' +1!)6' ,&!& 4&' B' $'(' @&' &'" "-&(' "#' ")&' %#-1%&'"+' $'(' (4$'"$.&+' $22&,"$ ' ' .' "#' ' ")&' 88 !&' @?') %' +122- &(6' +1!)' !" ' .' H#4&,'#,' 8#,&.# ' .' $--' $-$, &+' $'(' --#*$'!&+' @?') %')&-('$'('&'>#?&(' $'' ")&' %&' #8') +' @&' ' .' !$--&(' "#' +122-?' +1!)' 88 !&

#' H2ED' .' 2' 2H2#H6' #' 3"D' ' . . HD' .' 2' BDOOD/' .' (I#H 7 Z"D#' #' ' C/ F^ E #27' /' 3"D/' IH^ HDEE /' #' 3"D' J 3

<' '(' @&' '' &'$!"&(')$'' 8'$'?' <$!$'!?' +)$--')$22&'' ''")&' 88 !&' #8' $'' ,('$,?' &%@&,' #8' #1'! -' #8' ' *)&'' '#' 5&,+#'' 2,#4 + #'$--?' #,' #")&,* +&' $22# '"&(' "#' +1!!&&(' ")&,&"#' +)$--' @&' ")&'' 2,&+&''' #'' ")&' 2#'6' ")&'' $'(' #'' &4&,?' +1!)' !!$+ #'' +1!)' <$!$'!?' +)$--' @&' +122- &(' @?' ")&' 22# '"%&''' #8' ")&' H#4&,'#,' H&'&,$-' '' #1'! -' $'(' 8'$'?' <$!$'!?' +)$--')$22&'' ''")&' 88 !&' #8' $' &%@&,' #8' #1'! -' #8' $'?' 5,&+ (&'!?' *)&'' '#' 5&,+#V 2,#N 4 + #'$--?' #,' #")&,* +&' $22# '"&(' "#' +1!!&&(' ")&,&"$' +)$--' @&' ")&'' 2,&+&''' #'' ")&' 2#'6' ")&'' $'(' #'' &4&,?' +1!)' !!$+ #'' +1!)' <$!$'!?' +)$--' @&' +122- &(' @?' ")&' 22# '"%&''' #8' ")&' H#4&,'#,' '' #1'! -' #8' ")&' 5,&+ (&'!?' *) !)' +1!)' <$!$'!?' +)$--')$22&'' ' $'(' 1'" -' $' 1!!&++#,' +)$--' $,, 4&' ")&' 5&,+#'' +#' '#% '$"&(' +)$--' &9&!1"&' ")&' 88 !&' @?') %' +122- &(6' $'('+)$--')$4&' $--' ")&' 5#*&,+' ")&,&#86' $'(' +)$--')$4&' $'(')&' &'" "-&(' "#' ")&' $-$,?' $'(' #")&,' %#-1%&'"+' $'(' (4$'"$.&+' $22&,"$ ' ' .' "#' ")&' +$ (' 88 !&' (1, ' .') +' #'N " '1$'!&' ")&,& '6' &4&,?' Y1!)' "&%2#,$,?' &%@&,' #8' #1'! -6' 8#,&N .# ' .' $--' $-$, &+' $'(' --#*$'!&+' @?') %')&-('$'(' &1>#?&(' $'' ")&' %&' #8') +' @&' ' .' $22# '"&(' "#' +1!)' 88 &&' 5,#4 (&(' $-*B$?+6' ")$'' '#' 5&,+#'' +)$--')&' $22# '"&(' $' "&%2#,$,?' &%@&,' #8' #1'! -' *)#' % .)'' '#'')$4&' @&&'' $22# '"&(' @?' ")&' +$ (' #1,'' #8' 3 ,&!"#,+' "#' 8 -' ")&' <$!$'!?' +122- &(' @?' +1!)' "&%2#,$,?' 22# '"%&''

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(2C QV

< ' (@& "81,")&, &'$!"&(6)$"")& +$ ('H#4&,'#,'H&'&,$- "D FD//2/'
#1'! - +)$--)$4& $'(@& '4&+"&(@? 4 ,"1& #8 ") + !" * ")
81--B5#*&,'$'(1")#, "?"# +12&, '"&'('$'(!#'",#- ")& H#4&,'#,+
$'(H#4&,'#,+ #1'! - #8 1 / * (1 $ '" !JO'#P6#4&"
(*" $'('$-- 5# '"+ ,&-$" '. "# ")& 4 - #,
- "$,? (% ' +",$"#' #8 ")& +$ (5,&+ (&'! &+ ,&+2&!" 4&-?6 $'(
")& +$ (H#4&,'#,+ $'(H#4&,'#,+ #1'! - +)$-- @& @#1'("#
#@&? +1!) ,(&,+ $'('+",1!"#'+ #8 ")& +$ (H#4&,'#,'H&'&,$-
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")& H#4&,'#,+ #,'H#4&,'#,+ #1'! - #8 1 / * (2ZE C/ ^
1 (*" $'(,&+2&!" 4&-?6 "# 2,#2#+& "# C EDG O6
")& +$ (H#4&,'#,'H&'&,$- #1'! - 3,$8"+ #, 5,#>&!"+ #8 $'? FD/# /E 3
$*+ #, &.1-$"#'+ *) !) ")& +$ (H#4&,'#,+ #, H#4&,'#,+ OD 32]D# #3
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&$+#'+ 8#, 2,#2#+ '. ")& +$%& $'(")& +$ (H#4&,'#,'H&'&,$- 3 # O6
#1'! - +)&,&@? ,&C1 ,&("# "$:&")& +$%& $'(+1!) &$+#'+ '"# FD/# /
!#'+ (&,$"#'6 $'("# !#%%1' !$"& ")& &+#-1"#'+ #8 ")& +$ (D#D/2 #
H#4&,'#,'H&'&,$- #1'! - ")&,&#' "# ")& H#4&,'#,'#,'H#4&,'#, ('332H 7!
#1'! - @? *)#%6 ")& +$%& +)$--)$4& @&&' 2,#2#+&(

< ' (@& " &'$!"&(6)$" *)&' ")& +$ (H#4&,'#,'H&'&,$- + ZD/E .
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")& 5#*&,+ #8 ")& H#4&,'#,+ #8 ")#+& 5,&+ (&'! &+ ,&+2&!B 7 7 777A
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)&,&@? ,&+2&!" 4&-? ,&C1 ,&(,&.1-$,-? "# ",$'+% "# ")& +$ (
H#4&,'#,'H&'&,$- #1'! - ",1& $'(&9$!" #2 &+ #8 $ - +1!) H!*&,$V"
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#%& "# ")&, D'#*-&(.&6 $'(*) !) ")&? +)$-- (&&%6 %$"&, $- "# @&
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H#4&,'#,'H&'&,$- #1'! -6 $+ #8"&' $+ ")& 9 .&'! &+ #8 ")& D#D/2 /
51@- ! &,4 !& %$? $22&$, "#) %6 "# ,&C1 ,&6 "# $22# '" +1!) #'& (I#H 7 3#2N
#8 ")& ,('$,? &%@&,+ #8 ")& +$ (#1'! - #8 $+)& %$? 2CC #3 2
") ': 8 "# @& 3&21"? H#4&,'#, #8 ")& +$ (5,&+ (&'!? #8 1 *DCI36
/ * ($'(+1!) 3&21"? H#4&,'#, +)$-- @& '4&+"&(FD/# / 7
* ")$-- ")& 5#*&,+ $'(2&,8#,%6 $-- ")& 31" &+ #8 ")& +$ (H#4&,'#, D#427 2E
#8 ")& 5,&+ (&'!? #8 1 / * (@1" +)$-- ,&!& 4& '# & 4D#H DE
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H&'&,$- #1'! - +)$-- (&!-$,& ")$" +&92&(&'" ")$" ")& +$ (
H#4&,'#,'H&'&,$- +)#1-(4 + " $'? 5$,' #8 1'$!!#%2$' &(H&'%'
@? $'? &%@&, #, &%@&,+ #8 ")& #1'! - #8 +)$-- @& &#'!"+@$
k -$*81- GDH72/D "

D&CDG D#3'. /' 3"D' FD/# /' FE3%2%#6 +2/3' .' #G 2' Z 3" ' I3' " E' (I#H 7'

-$*81-' 8#,' ")&' +$ (' H#4&8' ,' H&'&,$-' '' #1'! -6' 2,&4 #1+-?' "#' ")&' 3&2$,"1,&' #8' ")&' +$ (' H#4&,'#,' H&'&,$-6' "#' '#% '$"&' +#%&' &%@&,' #11! -' #8' ' "#' @&' 5,&+ (&'' #8' ")&' +$ (' #1'! -6' ' *)#%6' (1, '.' ")&' @+&'!&' #8' ")&' $ (' H#4&,'#,' H&'&,$-' 8,#%' ")&' +$ (' 5,&+ (&'!?' #8' 1 '#/ *' '' (' ")&' 5#*&,+' #8' ")&' +$ (H#4&,'#,' H&'&,$-' '' ++&%@- &+' #8' ")&' +$ (' #1'! -' +)$--' @&' ,&2#+&($'(' '' +)$--' @&' -$*81-' '' `<&,?' +1!)' $+&' 8#,' ")&' +$ (' H#4&,'#,' H&'&,$-' '' #1'! -6' @?' $' $*' #,' &.1-$" #'' 8#,' ")$" 51,2#+&' "#' @&' %$(&6' "#' $1")#, L&' ")&' H#4&,'#,' H&'&,$-' $-#'&' "#' &9&,! +&' $--' #,' $'?' #8' ")&' 5#*&,+' *) !)' ' .)" @&' &9&,! +&(' @?' ")&' +$ (' H#4&,A' '#,' H&'&,$-' '' #1'! -6' &9!&2"6")&' 5#*&,' #8' %$: '.' $*+' #,' &.1N -$" #'+'] 5,#4 (&(' $-*$?+6' ")$" (1, '.' ")&' @+&'!&' #8' ")&' H#4&,'#,' H&'&,$-' '#' $*' #,' &.1-$" #'' +)$--' @&' %$(&' @?' ")&' +$ (' 5,&+ (&'' $'(' #1'! -' *")#1" ")&' ++&'' '' E, "'.' #8' ")&' +$ (' H#4&,'#,' H&'&,$-

7 D' #DZ' +/DE GD#H6' .' 4/2' # 3' 3 ' #= H3' 3"D' I HHDEE #' 3 (0 02#GE' 2#G' ' / HDE' #' 7 D#4#7' #G' 4/2

/' '(' @&' '' &'$!"&(6') '' ")&,&' +)$--' '#"6' @?' ,&$+#'' #8' ")&' 3 4 + #'' #8' ")&' &,, "#, &+' '#*' +1@>&!' "#' ")&' H#4&,'%&'' #8' ")&' 5,&+ (&'!?' #8' 1 ' / *' '' (' '"#' *#' 5,&+ (&'! &+' $+' $8#,&+$ (6' @&' $'?' &2$,$" #'' @&" *&&'' ")&' +"$@- +)%&'"+' $'(' #,!&+' ")&,&#8' ,&+2&!" 4&-?6' #,' $'?' -"&,$" #'' '' ")&' #1,+&' $'(' ,(&,' #8' 5,#%#" #'' $'(' 1!!&++ #'' #8' ")&' #%2$'?;+' &,4$'"+' V ")&' +$%&' *#' 5,&+ (&'! &+' ,&+2&!" 4&-?6' @1'' ")$" $--' ")&' &,4$'"+6' K 4-' $'(' -"$,?6' #8' ")&' (' +"$@- +)%&'"+' $'(' #,!&+6' +)$--' $'(' %$?' +1!!&&(' $'(' @&' $22# '"&(' "#' $--' #%%&'(+' $'(' 88 !&+' * ") '' &")&,' #8' ")&' +$ (' 5,&+ (&'! &+' ,&+2&!" 4&-?' $+' 8' ") +' !'')$(' '#' @&&'' 2$++&(

+/DE GD#H6' .' A /3' @ 77 2 0' 3 ' OD' D#3 /D' . /' 3"D' + I /^ C EDE' .' 3"D' B I 3 #6! H3

' '(' @&' '' &'$!"&(')$" 8#,' ")&' 51,2#+&+' #8' $'' !'' 2$++&(' '' ")&' #1,")' &$,' #8' ")#' & . '' #8' +' -$"&' $>&+"?' D '.' ' ")&' #1,")6' '' "1-&(' ' ' * $ ' ' ' ! $+'' '($' * ' K ' $+'' '(&+' ' ' > ' $'(' #8' $'?' ," !-&+' #8' E$,' %$(&' #,' "#' @&' %$(&' 1'(&,' ")&' +$%&6' ")&' 5,&+ (&'!?' #8' 1 ' / *' '' (' +)$--' @&6' "$:&'' $'(' (&&%&(' "#' !#%2, +&' 1'(&,' $'(' * ") '' '' $--' ")&' &,, N "#, &+' *) !)' @?' #,' '' 4 ,"1&' #8' ") +' !'' +)$--' @&' (4 (&(' @&"*&&'' ")&' 5,&+ (&'! &+' #8' 1 ' / *' '' (' ,&+2&!" 4&-?6' $'(' +)$--' 8#,' $--' ")&' 51,2#+&+' $8#,&+$ (' @&' "$:&'' "#' @&' ")&' 5,&+ (&'!?' #8' 1 ' / *' '' (' '' ")&' +$ (' !'' %&'" #'&(

/3 H7DE' .' @2/' 3 ' OD' 0 2GD' 06' M FD/# /' D#D/27' #' (I#H 7

6' '(' @&' '' &'$!"&(')$" '' +)$--' @&' -$*81-' ' ")&' +$ (' H#4&,'#,' H&'&,$-' '' #1'! -' 8,#%' %&' "#' %&' "#' %$:&' ," !-&+' #8' E$,' 8#,' ")&' H#4&,%%&'' #8' ")&' $"4&' 88 !&,+' $'(' #-(&,+' '' ")&' -"$,?' &,4 !&' #8' ")&' #%2$'?6' $'(' 8#,' ")&' (% ' +",$" #'' #8' R1+" !&' @?' #1,"+B%$," $-' "#' @&')#-(&'' #'' +1!)' 88 !&,+' $'(' #-(&,+6' $'(' +1!)' ," !-&+' #8' E$,' 8,#%' %&' "#' %&' "#' ,&2&$-' #,' 4$,?' $'(' $%&'(' $'(' +1!)' ," !-&+' E$,' +)$--' @&' %$(&' $'(' "$:&'' '#" !&' #8' '' ")&' +$%&' $''&,' $+' $--' #")&,' ")&' $*+6' $'(' &.1-$" #'+' "#' @&' %$(&' @?' ")&' +$ (' H#4&,'#,' H&'&,$-' '' #1'! -' 1'(&,' ") +' !"6' $'(' +)$--' 2,&4$ -' $'(' @&' '' 8#,!&6' $'(' +)$--' @&' #8' &9!-1+ 4&' 1")#, "?' #4&,' $--' ")&' $"4&' 88 !&,+' $'(' #-(&,+' '' ")&' +$ (' -"$,?' &,4 !&6' "#' *)$"&4&,

B ' ' (2C QV

*)$"&4&,' 5,&+ (&'!?' +1!)' 88 !&,+' $'(' #-(&,+' %$?' @&-#'.6' #,'
*)&,&+#&4&,'")&?' %$?' @&' +&,4 '.'' 5,#4 (&(' '&4&,")&-&++6' ")$" 1'" -'
+1!)' ," !-&+' #8' E$,' +)$--' @&' %$(&' @?' ")&' +$ (' H#4&,'#,' H&'&,$-' ''
#1'! -' $'?' ," !-&+' #8' E$,' 8#,' #,' ,&-$" '.' "#' ")&' H#4&,'%&'" #8'
")&' #%2$'?;+' $" 4&' #,!&+6' *) !)' $'" ")&' %&' #8' ") +' !' !#% '.'
'"#' #2&,$" #'' +)$--' @&' '' 8#,!&' $'(' 1+&' '' $'?' 5$,' #,' 5$,"+' #8' ")&'
+$ (' &,, "#, &+6' +)$--' ,&%$ '' '' 8#,!&

<' '(' @&' " &'$!"&(6')$" " +)$--' @&' -$*81-' 8#,' +' $' > E' B 25DE36'
>&+"?6' @?' $'?' E, " '.' 1'(&,' +' .'' $'1$-6' !#1'"&,+ .'&(' @?' ")&' ,7#4&
5,&+ (&'" #8' ")&' +$ (' #$,(' #8' #%% ++ #'&,+6' "#' ,&%#4&' #,' (+% ++'
$'?' 5&,+#'')#-('.' $'?' 88 !&6' %2-#?%&'"6' #,' #%% ++ #'6' 4 -' #' #G 2' F'
#,' -"$,?6' 1'(&,' ")&' +$ (' #%2$'?' '' ' $'(' "#' 4$!$"&' $'?'
22# '"%&'" #,' #%% ++ #'' #8' $'?' 5&,+#'' "#' $'?' +1!)' 88 !&' #,'
%2-#?%&'"' 2,#4 (&(' ")$" $' #2?' #8' &4&,?' +1!)' E, " '.6' $""&+"&('
@?' ")&' +$ (' 5,&+ (&'"6' +)$--' * ") '' .)" 3$?+' $8"&,' ")&' +$%&' +)$--'
@&' + .'&(' @?' +' $>&+"?' @&' ",$'+% ""&(' #,' (&- 4&,(' "#' ")&')$,6'
%$'' #,' 3&21"?')$,%$'' #8' ")&' +$ (' #%2$'?

<' 5,#4 (&(' $-*$?+6' $'(' @&' " &'$!"&(')$" '#") '.' '' ") +')&+ ZD/'
!" !#'"$ '&(' +)$--' "$:&' $*$?' ")&' 5#*&,' #8' ")&' +$ (' #1," #8' ")&* /DH'
3 ,&!"#,+' "#' ,&%#4&' #,' (+% ++' $'?' #8' ")&' 88 !&,+' #,' &,4$'"+' #8' ")&'
+$ (' #%2$'?6' @1" ")$" ")&' +$ (' #1," +)$--' $'(' %$?' $" $--' %&+' D/F2#3E' C/D'
)$4&' 81--' @&,"?' "#' ,&%#4&' #,' (+% ++' $'?' #8' +1!)' 88 !&,+' #,' ED/FDG'
&,4$'"+' $" ")&' ,' E --' $'(' 5-&$+1,&' 2,#4 (&(' ")$" $'?' &,4$'" #8'
")&' +$ (' #%2$'?' $22# '"&(' @?' +' $>&+"?' "),#1.)' ")&' 3&8$1-" '8'
22# '"%&'" @?' ")&' +$ (' #1," #8' 3 ,&!"#,+' +)$--' '#" @&' (+% ++&('
#,' ,&%#4&(' * ")#1" +' $>&+"?;+' 22,#@$" #'6' $+')&,& 'B@&8#,&' +
%&'" #'&(

<' '(' @&' " &'$!"&(')$" ")&,&' +)$--' @&' 2$ (' "#' ")&' +&B' 272/ DE' #8'
4&,$-' 88 !&,+')&,& 'B$8"&,' '$%&(' ")&' +&4&,$-' $-$, &+' +&" $.$ '+" ")&' (4&%#'
$%&+' #8' +1!)' 88 !&,+6' +1@>&!" "#' +1!)' &(1!" #'' #8' ")&' +$ ('
+&4&,$-' $-$, &+' ,&+2&!" 4&-?' $+' ")&' +$ (' #1," #8' 3 ,&!"#,+6' * ")' > .$ .8$'
")&' $'!" #'' #8' ")&' +$ (' #$,(6' %$?' $" $'?' %&' ") '.' 8 " X")$" +' ADDE!a H'
"#' +$?6[

#' ")&' H#4&,'#,' H&'&,$-' #8' ' *#')1'(,&(' $'(' 8#,"?'
")#1+$'(' !!$' 12&&+]

#' &$!)' ,('$,?' &%@&,' #8' ")&' #1'! -' #8' ' '&"?B+ 9'
")#1+$'(' !!$' 12&&+]

#' &$!)' H#4&,'#,' #8' ")&' 5,&+ (&'! &+' #8' 1 ' ' '
(*" '$'(' ' '&')1'(,&(' $'(' "*&'"?' ")#1+$'(' !!$
12&&+']

#' &$!)' &%@&,' #8' $'?' #1'! -' "#' @&' $22# '"&(' '' $'?' 5,&N
+ (&'!?6' 9"?' ")#1+$'(' !!$' 12&&+']

'(' ")&' $-$, &+' #8' ")&' +$ (' 88 !&,+' ,&+2&!" 4&-?' +)$--' !#%%&'!&
8,#%' ")&,' ,&+2&!" 4&-?' "$: '.' 12#'' ")&%' ")&' 9&!1" #'' #8' ")&,'
,&+2&!" 4&' 88 !&6' $'(' ")&' +$ (' $-$, &+' +)$--' @&' ")#-&' 5,#8 " #,'
(4$'"$.&' *) !)' ")&' +$ (' 88 !&,+' +)$--' &'>#?' (1, '.' ")&,' #''
" '1$'!&' '' +1!)' 88 !&+' ,&+2&!" 4&-?' ' $'(' " +)$--' @&' $'(' " +' HHDC32#HD'
)&,&@?' (&!-$,&(' "#' @&' $' +(&%&$'#,' 8#,' $'?' +1!)' 88 !&,' "#' !!&2" .>777AAAAA'
8#,') +' #*'' V+&6' '' ")&' 3 +!)$,.&' #8') +' 88 !&6' $'?' 5,&+&'"6' H 8"6' '&$'`,
3#'$" #'6

+2EE24D' B #D6'. &DG

3#'$"#'6 H,$"1 "?6 #,' &*$,(6 2&!1' $,?#,' #")&,* +&' *)$"+#&4&,6 #,' "#' ",$(&'#,' ",$88 !' 8),') +' #*'B &'&8 #,' 8#,' ")&' &'&8 #8'$'? #")&,'5&,+#'' #,'5&,+#'+' *)$"+#&4&,' $'('")&' +$(' #1," #8'3 ,&!"#,+' $,&')&,&@?,&C1 ,&('"#' 2$?'"#'$--'$'('+ '.1-$,'")&' 88 !&,+'$'('5&,+#'+' K)&,& 'B$8"&,' '$%&('=E)#' +)$--'@&' ,&+ (&'' '' ")&' V' "&(' D '.(#%' $" ")&' %&' #8' ")&,' ,&+2&!" 4&' 22# '"%&'"+6 8#,' ")&' 51,2#+&' #8' (&N 8,$? '.'")&' 92&'&&+' #8' ")&,' C1 2%&''$'(' <#?$.&6 +1!)' 1%+' #8' #'&?'$+' $,&' +&' $.$ '+'")&' $%&+' #8' +1!)' 8 !&,+' $'(' 2&,+#'+' ,&+2&!" 4&-?' X")$" +' "#' +$?6[

#' ")&' H#4&,'#,' H&'&,$-6 4&'")#1+$'('5#1'(+]

#' &$!)' &%@&,' #8' ")&' #1'!-' '&' ")#1+$'(' "*#')1'(,&('5#1'(+']

#' &$!)' H#4&,'#,' #8' ")&' 5,&+ (&'! &+' #8' # ' ' '

(*" '$'(' ' *#' ")#1+$'('8 4&')1'(,&('2#1'(+']

5,#4 (&(' $-+#6 ")$" $'? H#4&,'#,' H&'&,$-6 H#4&,'#,6 #,' &'$@&,'#8' #1'!-' $22# '"&(' @?' #,' @?' 4 ,"1&' #8' ") +' !"6 4F)#' +)$--' $" ")&' %&' #8' 2$++ '.' ") +' !")#-(' ")&' 88 !&' #8' H#4&,'#,'' H&'&,$-6 H#4&,'#,6 #,' &%@&,'#8' #1'!-' ,&+2&!" 4&-?6 +)$--' ,&!& 4&' ")&' +$""-&' $-$,?' $'(' --#*$'!&+' ")$")&' *#1-(')$4&' ,&!& 4&(' 8' ") +' !")$(' '#" @&&'' 2$++&(

M5 FD/# /' D#D/2? 2#G' FD/# /E' 3 '. /D4 ' +D#E #E'2#G' 3"D/' % 2?2/ DE ./ O' 3"D' (/ Z#' /' (OC2#6' Z" 7D' 3"D6' " 7G' '.. HD

'< ' 5,#4 (&('$-*$?+6'$'('@&' "&'$!"&(6)$" 8'$'?'H#4&,'#,' H&'&,$-6 H#4&,'#,6 #,' ,('$,?' &%@&,'#8' ")&' #1'!-' #8' '#,' $'?' &%@&,' #8' ")&' #1'!-' #8' $'?'5,&+ (&'!?6 +)$--')#-(' #,' &'>#?' $'?'5&'+#'6 $-$,?6 #,' $ 7'5-$!&6 88 !&6 #,' ' 2-#?%&'' #8' 5,#8 1'(&,'")&' ,#*'' '/ $""?' 51@- !' 88 !&' #,' ")&' +$(' #%2$'?6 #,' $'?' ''1 "?'2$?$@-&' #1" #8' ")&' 4-' #,' -"$,?' 1'('#8' ")&' +$(' #' B' 2$'?6 ")&' $-$,?'#8')+' 88 !&' #8'H#4&,'#,' H&'&,$-'#8' 'H#4&,'#,' #,' &%@&,' #8' #1'!-6 +)$--' @&' ,&(1!&(' @?' ")&' %#1'' #8'")&' 5&'B +#'' $-$,?6 ''1 "?6 ' 5,#8 "+' #8' 88 !&' +#' ,&+2&!" 4&-?')&-(' #,' &'>#?&(' @?') %

* /DH3 .E'3 ' O2]D' =D4 I^ 723 #E'. /' 3"D' * E3/ ^ OI3 #' .' +23/ #24D' #' #G 2

< ' '('@&' "&'$!"&(')$"")&' +$(' #1," #8'3 ,&!"#,+6 * ")' ")&' 22,#@$" #'' #8' ")&' +$(' #$,('#8' #%% ++ #'&,+6 +)$--' $'(' %$?' 8,#%' %&' "#' %&' %$:&' &.1-$" #'+' 8#,' ")&' 3 4 + #'' $'(' 3 +">;B' @1" #'' #8' ")&' 5$",#'$.&' $'(' 5#*&,' #8' #%' '$" #'' #8' $'(' "#' ")&' 88 !&+6 #%%$'(+6 $'(' %2-#?%&'"+' '' ")&' +$(' &,, "#, &+6 $'(' '' $--' #,' $'?' #8' ")&' 5,&+ (&'! &+' ")&,&#8' $%#'.' ")&' +$(' H#4&,'#,' H&'&,$-' '' #1'!-6 H#4&,'#,' H&'&,$-6 H#4&,'#,+' '' #1'!-6 H#4&,'#,+6B' #%%$'(&,' '') &86 $'(' #")&,' #%%$'(' '.' 88 !&,+' ,&+2&!" 4&-?' $22# '"&('#,' "#' @&' $22# '"&(' 1'(&,' ") +' !"

*DC2/3I/D' .' FD/# /' D#D/27' H' . /' I/ CD!' 3' 'OD' 2' =D^ E 4#23 # =DE 4#23 #' #' #G 2' 3 ' OD' O6' *DDG

' ' '(' @&' " &'$!"&(6)$" ")&' &"1,'' "#' . ' ' ")&' 3&2$,"1,&'8,#%' '* ")' '"&'' "#' ,&"1,'' "#' . ' #8' $'?' H#N 4&,'#,' H&'&,$-' #8' H#4&,'#,6 &%@&,' #8' #1'!-6 #,' #%N %$'(&,' 'B)&86 +)$--'@&' (&&%&(' '' $*'$' &+ .'$" #''$'(' 4# ($'!&' #8') +' 88 !&' #,' %2-#?%&''6 $'('")$" '#' !" #,'3&!-$,$" #'' #8' $'?' H#4&,'#,'H&'&,$-6 #,' H#4&,'#,6 #,' &%@&,' #8' #1'!-6 #")&,' ")$'' $+' $8#,&+$(6 &9!&2" '.' $' 3&!-$,$" #'' '' E ,' '.' 1'(&,' $'(' $'(' &$-6 (&-4&,&(' "#' ")&' &!,&"$,?' 8#,' ")&' 51@- !' 3&2$,"%&'' #8' ")&' 5,&+ (&'!?' *) ,&' '')&' +)$--' @&6 ''#,(&,' "#' "+' @& '.' ,&!#,(&(6 +)$--' @&

@&' (&&%&(' #,')&-(' $+' $' &+ . '$" #'' #,' 1,,&' (&,' #8') +' +$ (' 88 !&' 272/6' 3 '
$' (' ")$" ")&' $-$,?' $' (' #")&,' --#*$'!&+' #8' $'?' +1!)' H#4&,'#,' HD2ED' #
H&'&,$-' #,' #")&,' 88 !&,' ,&+2&!" 4&-?' +)$--' !&$+&' 8,#%' ")&' 3$?' #8' *DC2/31/D' /'
+1!)') +' 3&2$,"1,&6' &+ . '$" #'6' #,' 1,,&' (&,'' $' (' ")$" 8'$'?' +1!)' =DE 4#23 #
H#4&,'#,' H&'&,$-' #,' &%@&,' #8' #1'! -' #8' ' +)$--' -&$4&' ")&'
+$ (' &,, "#, &+6' #,' 8'$'?' H#4&,'#,' #,' #")&,' 88 !&,' *)$"&4&,' '' ")&'
&,4 !&' #8' ")&' +$ (' #%2$'?' +)$--' -&$4&' ")&' 5,&+ (&'!?' "#' *) !)')&'
+)$--' @&-#' .6' #")&,' ")$'' '' ")&' :'#*'' $!"1$-' &,4 !&' #8' ")&' +$ ('
#%2$'?6' ")&' $-$,?' $' (' --#*$'!&+' $22&,"$ ' ' .' "#') +' 88 !&' +)$--'
'#"'@&' 2$ (' #,' 2$?$@-&' (1, ' .') +' @+&'!&' "#' $'?' .&'' #,' #")&,'
5&,+#'' 8#,') +' V+&' $' (' '' ")&' &4&'' #8') +' '#' ,&"1, ' ' .6' #,' #8' @ +'
!#% ' .' "#' . ') +' $-$,?' $' (' --#*$'!&+' +)$--' @&' (&&%&(' "#'
)$4&' !&$+&(' #'' ")&' 3$?' #8') +' -&$4 ' .' ")&' +$ (' &,, "#, &+6' #,' ")&'
5,&+ (&'!?' "#' *) !)')&' %$?')$4&' @&-#' .&(' ' 2,#4 (&(' ")$" " +)$--' Eà3 ' =DC/D ''
@&' -$*81-' 8#,' ")&' +$ (' #%2$'?' "#' %$:&' +1!)' 5$?%&'' $+' +' '#*' @?' ED#323 FDE' .'
$*' 2&,% ""&(' "#' @&' %$(&' "#' ")&' &2,&+&'"$" 4&+' #8' ")&,' 88 !&,+' '.. HD/E' G6 #4'
#,' &,4$'"+' *)#6')$4 ' .' -&8'' ")&,' "$" #'+' '"&' (' .' "#' ,&"1, '' ")&,&"#6' G1/ #4' O^
+)$--' (&' (1, ' .' ")&,' @+&'!& ED#HD

' '(' @&' '' &'$!"&(')$" &4&,?' * -81-' (+#@&? ' .6' $' (' * E ODG D#HD'
&4&,?' * -81-' #% "" ' .6' 8#,@&$, ' .6' #,' '&.-&!" ' .' "#' &9&!1"&'' ")&' ,(&,+'
#,' '+",1!" #'+' #8' ")&' +$ (' #1," #8' 3 ,&!"#,+' @?' $'?' H#4&,'#,' #8 '"+"@4'
H&'&,$-' #8' ' H#4&,'#,6' &%@&,' #8' #1'! -6' #,' #%%$'(&,' '' '.. HD/E' .'
) &86' #,' @?' $'?' #")&,' #8' ")&' 88 !&,+' #,' &,4$'"+' #8' ")&' +$ (' #%B' D/F2#3E' .'
2$'?6' 1'-&++' '' $+&+' #8' &!&++ "?' X")&' 1,")&'' #8' ")&' 5,##8' #8' *) !)'
&!&++ "?' +)$--' @&' #'' ")&' 5&,+#'' +#' (+#@&? ' .' #,' #% "" ' .6' 8#,@&$, ' .' GD O D2# /E!'
#,' '&.-&!" ' .6' "#' &9&!1"&' +1!)' ,(&,+' #,' '+",1!" #'+' $+' $8#,&+$ ([' $' ('
&4&,?' * -81-' ,&$!)' #8' ")&' ,1+' $' (' 31"?' #8' $'?' 88 !&' #,' %2-#?N
%&'' @?' $'?' +1!)' H#4&,'#,' H&'&,$-6' H#4&,'#,6' &%@&,' #8' #1'! -6'
#,' #%%$'(&,' '') &86' #,' $'?' #8' ")&' 88 !&,+' #,' &,4$'"+' j 8' ")&'
+$ (' #%2$'?6' +)$--' @&' (&&%&(' $' (' "$:&'' "#' @&' $' +(&%&$'#,' $"
$*6' $' (' +)$--' #,' %$?' @&' 2,#!&&(&(' $.$ '+' $' (' 21' +)&(' $+' +1!)'
@?' 4 ,"1&' #8' ") +' !"

' '(' @&' '' &'$!"&(')$" '' +)$--' @&' -$*81-' 8#,' $'?' 13" / 36'
'$"1,$-B@#,'' 1@>&!"+' #8' +' $>&+"?' "#' 2,#!&&(' @?' &$' "#' $'?' 5#,'' . /' > E'
#,' 5-$!&')$4 ' .' $' 1+"#%B)#1+&' +"$@- +)%&'' * ") '' ")&' +$ (' &,N B 25DE36E'
, "#, &+6' $' (' "#' ,&+ (&' ")&,&$"6' #,' "#' 2,#!&&(' "#' $' (' ,&+ (&' '' #,' 2$+-' 1O5DH3E' 3 '
"),#1.)' $'?' 5$," #8' +1!)' #8' ")&' +$ (' &,, "#, &+' $+' *&,&' 1'(&,' ")&' /DE GD' #
H#4&,'%&'' #8' ")&' +$ (' #%2$'?' #'' ")&' ,+" 3$?' #8' & ' '&' HD/32 # +2/3E
")#1+$' (' & .)")1'(,&(6' $' (' '' $'?' 5$," #8' ")&' #1'", &+' !&(&(' @?' .' #G 2'
")&' $@#@' #8' ")&' ' #8' ")&' 5,#4 '!&' #8' +' $' (' #8' ")&' Z 3" 13'
&""-&%&''+' #8' ' $' (' ' * ")#1" $'?' !&'!&' *)$"B' HD#HD
&4&, ' 2,#4 (&(' ")$" $--' 1@>&!"+' #8' +' $>&+"?' '#' $" 4&+' #8' ")&'
+$ (' &,, "#, &+' +)$--6' #'' ")&' , ,, 4$-' '' $'?' 5$," #8' ")&' +$ (' 5&,, '
"#, &+' 8,#%' $'?' 5#," #,' 5-$!&' '#' * ") '' ")&' +$ (' &,, "#, &+6' %$:&;
:'#*'' '' E , " ' .' ")&,' $%&+6' 5-$!&+' #8' 3&+" '$" #'6' $' (' @>&!"+'
#8' 51,+1 '' '' ' "#' ")&') &8' 88 !&,' #8' ")&' 1+"#%+' #,' #")&,'
88 !&,' $1")#, L&(' 8#,' ")$" 51,2#+&' $" +1!)' 5#," #,' 5-$!&' $+' $8#,&+$ (

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&,, "#, &+6 "# &'"&,'")& +$%& @? $'(6 #,'"# 2,#!&&(' "#'#,' ,&+ (& '' $'? 5-$!& #,' 5-$!&+ '' +1!)' 5$,"+ #8")& +$ X- &,, "#, &+ $+ $,& '#")&,& 'B@&8#,& '' ")$" &)$-8 %&'" #'&(6 * ")#1" !&'!& 8,#% ")& +$ (' #$,(' #8 #%% ++ #'&,+6 #,' ")& +$ (' #1," #8 3 ,&!"#,+6 #,' ")& +$ (' H#4&,'#,' H&'&,$- '' #1'! -6 #,' $ H#4&,'#,' #,' H#4&,'#,' '' #1'! - #8 $'? #8")& +$ ('5,&+ (&'! &+ 8#,')$" 51,2#+& 8 ,+" #@"$ '&(] 5,#4 (&('$-*$?+6 ")$" '# !&'!& . 4&'' "# $'? '$"1,$-B@#,'' 1@>&!" #8 + $>&+"? "# ,&+ (& '' 5$,"+ #8")& &,, "#, &+ '#" #2&'' "# $-- +1!)' 1@>&!"+ +)$-- @& (&"&,% '&(' #,' ,&4#:&(' 1'-&++ '' $!!#,($'!& * ")' ")& &,%+ #8+#%& &92,&++ -$1+& #8 &4#!$" #'' #,' 3&"&,% '$N "#'' '' +1!)' !&'!& !#'"$ '&(

7D FD/# /' M H#D/27 # (I#H 7! Z 3"' C/DF IE (#ED#3 .' * /DH3 /E! O 26 GDH72/D 3"D/' +72HDE CD#

' 5,#4 (&('$-*$?+6 $'(' @& " &'$!"&(')$" " +)$-- @& -$*81- 8#,' ")& +$ (' H#4&,'#,' H&'&,$- '' #1'! -6 * ")' ")& 2,&4 #1+ #'+&'" $'(' 22,#@$" #'' #8")& +$ (' #1," #8 3 ,&!"#,+ 8#,' ")$" 51,N 2#+& #@"$ '&(6 "# (&!-$,& $'? 5-$!& #,' 5-$!&+ *)$"&4&,'%") '' ")& +$ (' &,, "#, &+ #2&'' "# $-- + $>&+"?;+ '$"1,$-B@#,'' 1@>&!"+6 $'(' " +)$-- @& ")&'!&8#,")' -$*81- 8#,' $'? #8 + $>&+"?;+ '$"1,$-B@#,'' 1@>&!"+ "# 2,#!&&(' "#6 #,' ,&+ (& 16 #,' 2$++ "),#1.)' $'? 5-$!& #,' 5-$!&+ (&!-$,&('#2&'' * ")#1" $'? !&'!& *)$"&4&,

2ZE 242 #E3 77 H 3 =DE ^ GD#HD 3 ' OD O 2GD

<' '(' @& " &'$!"&(')$" ")& +$ (' H#4&,'#,' H&'&,$- '' #1'!V +)$-- $'(')& +)&,&@?,&C1 ,&(6 $+ +## '' $+ !#'4&' &'"-? %$? @&6 "# %$:& $*+ #,' &.1-$" #'+ 2,#4 ('.' 8#,' ")& 5,&4&'" #'' #,' 51' +)%&'" #8")& -- ! " '",$'!& '"# #,' &+ (&'!& '' ")& +$ (' &,, "#, &+ #8 5&,+#'+ '#" $1")#, L&(' "# &'"&,' #,' ,&+ (&")&,& '

2ZE 2#G =D4 I723 #E 3 ' OD O 2GD . /' +/ 3DH^ 3 # .') 23 FDE

<6 '('*)&,&$+ ")& &%#4$- #8 &+", !" #'+ #'' ")& '"&,N !#1,+& #8 . ' * ")' ")& +$ (' &,, "#, &+ * -- ,&'(&,' " '&!&++$,? "# 2,#4 (& $.$ '+" $'? +!) &8+ #,' 3$'.&,+ ")$" %$? $, +& ")&,&N 8,#%6 @& " ")&,&8#,& &'$!"&(')$" ")& +$ (' H#4&,'#,' H&'&,$- '' #1'! - +)$-- $'(')& +)&,&@?,&C1 ,&(6 @? $*+ #,' &.1-$" #'+6 "# 2,#4 (& * ")' $-- !#'4&' &'" 2&&(' 8#,' ")& 5,#"&!" #'' #8")& $" 4&+ #8")& +$ (' &,, "#, &+ 8,#% '+1-" $'(' 1",$.& '' ")& ' 5&,+#'+6 &- . #'+6 #,' 2 ' #'+

2#GE Z 3" # 3"D #G 2# D// 3 / DE O 26 OD C I/^ H"2EDG

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) ' * E^ 2O 7 3 DE # /DECDH3 .' =D7 4 #! (7 I/! /' +72HD . /3"!

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-$4&,?' "),#1.)#1"' ")&' +$ (' &,, "#, &+' +#' +##'' $+' +1!)' 9" ' !" #''
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",$'+% '' "#' ")&' +$ (' #1,"' #8' 3 ,&!"#,+' 3,$8"+' #8' $*+' #,' &.1-$N
" #'+' 8#,'")&' 51,2#+&+' $8#,&+$ (6' $'(")$"' ''2,&2$, ' .' +1!)' 3,$8"+' (1&'
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' '(' *)&,&$+' ")&' 2,&+&'"' 3 #!&+&' #8' ")&' +)#2, !:' =DECDH3 #4'
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2&,8#,%' &88 ! &'"-?' $--' ")&' 31" &+' #8' ")&' 88 !&' * ")#1"' &'($'.&, ' .' 9"&'"A7#8" &
) +' &$-")' $'(' 8&6' $'(' "' +' ")&,&8#,&' &92&(&'"' "#' (% ' +)' ")&' * HDED' .'
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+)#26' $'(' 8#,' 8#1'(' .' $'(' !#'+" "1" ' .' *#' +&2$,$"&' $'(' (+" ' !"'
+)#2, !:+6' @1"' '&4&,")&-&++' ")&' +)#2+' ")&,&#8' "#' @&' +1@#,('$"&'
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+$ (' 88 !&' #8' +)#2' +)$--' "$:&' 12#'' ")&%' ")&' 9&!1" #'' #8' ")&,' ' .. HD'
,&+2&!" 4&' 88 !&+' $'(")$"' +1!)' $-$, &+' +)$--' @&' '' - &1' #8' $--' &&+' 2#G' 3 ' OD' #&
#8' 88 !&6' 5&,C1 + "&+6' %#-1%&'"+6' #,' (4$'"$.&+' *)$"+#&4&,' $'(' 7 D I' .' 27'
")$"' '#' &&+' #8' 88 !&6' 5&,C1 + "&+6' %#-1%&'"+6' #,' (4$'"$.&+'
*)$"+#&4&,' +)$--' @&' $!!&2"&(6' ,&!& 4&(6' #,' "$:&'' @?' +1!)' +)#2' #,'
& ")&,' #8' ")&%6' '' $'?' $''&,' #,' #'' $'?' !!#1'"' #,' 5,&"&'!&'
*)$"+#&4&,6' #")&,' ")$'' ")&' $-$, &+' $8#,&+$ (' $'(' ")$"' +1!)' +)#2+'
,&+2&!" 4&-?' +)$--' @&' &'"-&(' "#' +1!)' $-$, &+' +#' -#' .' $+' ")&?' +)$--
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+2EE24D B #D6 . / D2H" E I H" E" C

' (' @& " & '$!"&(')$" ")& +$ (' #1," 8 3 ,&!"#,+ +)$-- $' (")&? $,& ,&C1 ,&("# 2$? "# ")& +)#2+ +# 8,#% %& " %& "# @& $22# '"&("# ")& +$ (' +)#2, ! :+ #8 (* " , ' !$+& ")&? +)$-- 8#& ,&+ (&' ' ")& V2 "&(D ' . ('%' $" ")& %& #8 ")& , ,&+2&!" 4& 22# '"%&'"+6 ")& 1% #8 4&)1' (,&(5#1' (+ &$!)6 8#, ")& 51,2#+& #8 (&8,$? ' . ")& 92&' !&+ #8")& , C1 2%&'"+ $' (<#?$.&

E 3 ' , I / E^ G H3 # . E I H" E" CE

5,#4 (&(' $-*$?+6 $' (' 8#& " & '$!"&(6)$" +1!)' +)#2+ +)$-- '#")$4& #, 1+& $'? R1, +(!" #'6 #, &9&,! +& $'? 2 +!#2$- 1' !" #'+ *)$"+#&4&,6 & ")&, ' ")& +$ (' &,, "#, &+ / &-+&*)&,&6 @1" #'-? +1!) R1, +(!" #' $' (' 1' !" #'+ $+ +)$-- #, %$7 8,#% %& "# %& @& - % "&("# ")&% ,&+2&!" 4&-? @? + $>&+"? @? + #?$- &""&,+ 5$"&' " 1' (&, ")# H,&$" &$- #8 ")& .$ (' V' "&(D ' . (#%

"D ? #4 DOC ZD/DG O6 D33D/E +23D#3 3 ' 7 0 3 , I / E^ G H3 # 2#G A I #H3 #E

' (' @& " &'$!"&(6)$" " +)$--$' (' %$? @& -$*81- 8#, + $>&+"? 8,#% %& "# %&6 8 & +)$-- ") ' : 8 "6 "_? + #?$- &""&,+ 5$"&' " 1' (&, ")& H,&$" &$- #8 ")& +$ (' V' "&(D ' . (#%6 "# $++ . ' % "+ "# ")& 3 #!&+& #8 ")& +)#2, ! : #8 $' ("# ")& 3 #!&+&+ #8 ")& +$ (' +)#2, ! :+ #8 $' ((* " ,&N +2&!" 4&-?6 $' (' 8,#% %& "# %& "# $-"&, $' (' 4$,?")& +$%& % "+ ,&+2&!" 4&-?6 $+ "# + $>&+"? +)$-- +&&% 8 "6 $' (* ' +1!) +)#2+ ,&+2&!" 4&-? * ") ' ")& % "+ #8 ")&, ,&+2&!" 4& 3 #!&+&+ ")& 9&,! +& #8 2 +!#2$- 1' !" #'+6 $' (#8 +1!) ! !-&+ $+" !$- R1, +(!" #' $+ + $>&+"? +)$-- ") ' : '&!&++$,? 8#, ")& 12&, '"&' (N &' !& $' (' .##(H#4&, '%&' " #8 ")& ' +"&,+ #8 ")& V' "&( )1,!) #8 . ")&,&'

"D E" C . (27H I 332 3 ' OD B D3/ C 7 3 # # #G 2

< 5,#4 (&($-*$?+6 $' (' @& " &'$!"&(6)$" ")& +)#2 #8 8#, ")& %& @& ' . +)$-- @& (&&%&($' ("$:&' "# @& ")& &",#2#- "$' +)#2 2#G $+ +1!) +)$--)$4&6 &'>#?6 $' (&9&,! +& $-- +1!) ! !-&+ $+" !$- R1, +(!" #' $' (2 +!#2$- 1' !" #'+6 8#, ")& 51,2#+&+ $8#,&+$ (6 $+ + $>&+"? +)$-- @? + #?$- &""&,+ 5$"&' " 1' (&, ")& H,&$" &$- #8 ")& +$ (' V' "&(D ' . (#% ") ' : '&!&++$,? "# (,&!"6 +1@>&!" '&4&,")&-&++ "# ")& .&'&,$- 12&, '"&' (N &' !& $' (&4 + #' #8 ")& ,!)@ +)#2 #8 " 8#, ")& %& @& ' . $' (")$" ")& +)#2+ #8 $' ((* " 8#, ")& %& @& ' . ,&+2&!" 4&-? +)$-- @& +1@>&!" "# ")& +)#2 #8 ")& %& @& ' . $+ +1!) &",#2#- "$'6 $' (+)$--6 $" ")& %& ")& , ,&+2&!" 4& 22# '"%&'"+ "# +1!) +)#2, ! :+6 $" ")& %& #8 ")& , ,&+2&!" 4& #'+&!,$" #'+ $+ +)#26 "$:& $' $" ")& @&(&'!& "# ")& +$ (+)#2 #8 +1!) $' '&, $+ + $>&+"? @? + +$ (#?$- &""&,+ 5$"&' " +)$-- @& 2-&$+&("# (,&!"

@2//2#3E . / 77E # D3^ 3D/E +23D#3 2CC #3 #4 E" CE 3 ' OD H I #3D/^ E 4#DG O6 3" D +/DE GD#3

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< ' '(' @&' "' &'$!"&(6')$"' "' +)$--' $'(' %$?' @&' -$*81-' 8#,' +' $>&+"?6' +' & ,+' $'(' 1!!&++#,+6' @?' E$,,$'"' 1'(&,' +' #?$-' .'' $'1$-6' !#1'"&,+ .'&(' @?' ")&')$'!&--#,' #8' ")&' 9!)&B' C1&,' 8#,' (&' %&' @& '.6' "#' .,$'"' "#' $'?' +1!)' +)#2' #8' '#,' (*" ' ,&+2&!" 4&-?' *)#' +)$--')$4&' &9&,! +&(' '' ")&' (' &,, B' "#, &+' $8#,&+$ (' 8#,' 8"&&'' &$,+' ")&' 88 !&' #8' +1!)' +)#2' $' 5&'+ #'' '#'' &9!&&('.' .)"')1'(,&(' 5#1'(+' ' *' "#' @&' 2$ (' C1$,"&,-?' @?' ")&' +$ (' #%2$'?

"D' ? #4' 0 26' 4/2#3' E" CE' .' B 2G/2E' /' #%@$?B

< ' '(' @&' "' &'$!"&(')$"' '' $--' $+&+' *)&'' "' +)$--')$22&'' ")&' +$ (' 5&,+#'' '#% '$"&('$'(' $22# '"&(' "#' @&' +)#2' #8' & ")&,' #8' ")&' +$ (' +)#2, !:+' #8' ' #,' (*" ' +)$--' (&2$,"' ") +' 8&' * ") '' 9' $-&'($,' #'")+' '&9" $8"&,' ")&' 3$?' *)&'')&' +)$--')$4&' $,, 4&(' '' ' 8#,' ")&' 51,2#+&' #8' "$: '.' 12#'') %' ")&' 88 !&' #8' +1!)' +)#26' ")&,&' +)$--' @&' 2$?$@-&' #1"' #8' ")&' &,, "#, $-' &4&'1&+' 8,#%' *) !)' ")&' $-$,?' #8' +1!)' +)#2' +#' (? '.' +)$--' @&' 2$?$@-&6' "#' ")&' -&.$-' 2&,+#'$-' &2,&+&'"$" 4&+' #8' +1!)' +)#26' +1!)' 1%' #,' 1%+' #8' #'&?' $+' +)$--6' "#.&")&,' * ")' ")&' 1%' #,' 1%+' 2$ (' "#' #,' (,$*'' @?' +1!)' +)#2' '' ,&+2&!"' #8') +' $-$,?6' %$:&' 12' ")&' 81--' %#1'"' #8' '&' &$,;+' $-$,?' $'(' *)&'' $'(' +#' #8"&'' $+' "' +)$--')$22&'' ")$"' $'?' +1!)' +)#2' +)$--' (&2$,"' ") +' 8&' *) -&' '' 2#++&++ #'' #8' +1!)' 88 !&6' $'(' $8"&,' ")&' 92 ,$" #'' #8' 9' $-&'($,' #'")+' 8,#%' ")&' %&' #8') +' ,, 4&$-' '' ' 8#,' ")&' 51,2#+&' #8' "$: '.' 12#'') %' +1!)' 88 !&6' ")&'' $'(' '' &4&,?' +1!)' $+&' ")&,&' +)$--' @&' 2$?$@-&6' #1"' #8' ")&' &,, "#, $-' &4&'1&+' 8,#%' *) !)' ")&' $-$,?' #8' ")&' +$ (' +)#2' +#' (? '.' +)$--' @&' 2$?$@-&6' "#') +' -&.$-' 2&,+#'$-' &2,&+&'"$" 4&6' #4&,' $'(' $@#4&' *)$"' %$?')$4&' @&&'' (1&' "#') %' $"' ")&' %&' #8') +' 3&$")6' $' 1%' &C1$-' "#' ")&' 81--' %#1'"' #8' ")&' $-$,?' #8' +1!)' +)#2' 8#,' 9' $-&'($,' #'")+

/' 2.3D/' &' B #3"E' " 7G^ #4' '.. HD' # #G 2

=DECDH3 #4' 272/6' .' 2' E" C' .' B 2G/2E' /' 0 026' G6 #4' Z 3" #' &' B #3"E' 2.3D/' // F27N

< ' '(' @&' "' &'$!"&(6')$"' 8' "' +)$--')$22&'' ")$"' & ")&,' #8' ")&' +)#2+' #8' ' #,' (*" ' +)$--' @&' ",$'+-$"&(' "#' ")&' +)#2B' , !:' #8' ' ")&' 5&, #(' #8' &+ (&'!&' #8' +1!)' 5&,+#'' $+' +)#2' #8' ' #,' (*" ' +)$--' @&' $!!#1'"&(' 8#,' $'(' "$:&'' $+' $' &+ (&'!&' $+' +)#2' #8' '-' $'(' 8' $'?' 5&,+#'' '#*' $'' ,!)(&$!#'' '' ")&' +$ (' &,, "#, &+' +)$--' @&' $22#'"&(' +)#2' #8' ' #,' (*" ' ")&' 5&, #(' #8') +' &+ (&'!&' '' ' $+' +1!)' ,!)(&$!#'' +)$--' 8#,' $-- ")&' 51,2#+&+' #8' ") +' !' @&' $!!#1'"&(' 8#,' $'(' "$:&'' $+' $' &+ (&'!&' $+' +1!)' +)#2

E' 3 ' =DE ' GD#HD' .' 0 026' .' 3/2#E723DG' 3 ' (27H I 332'

' 5,#4 (&(' $-+#6' $'(' @&' "' &'$!"&(')$"' 8' $'?' 5&,+#'' 1'(&,' ")&' 3&.,&&' #8' $' +)#2' +)$--' @&' $22# '"&(' "#' & ")&,' #8' ")&' +)#2N , !:+' #8' ' #,' (*" ' *)#' $"' ")&' %&' #8' +1!)' 22# '"%&'' +)$--' @&' ,&+ (&'' '' ' ")&'' $'(' '' +1!)' $+&' '' +)$--' $'(' %$?' @&' -$*81-' 8#,' ")&' ,!)@ +)#2' #8' " ' *)&'' $'(' $+')&' +)$--' @&' ,&C1 ,&(' +#' "#' (#' @?' +' $>&+"?' @?' +' #?$-' &""&,+' 5$"&'' 1'(&,' ")&' H,&$"' &$-' #8' ")&' +$ (' V' "&(' D '.(#%6' "#' ++1&' $' #%% ++ #'' 1'(&,' +' $'(' $'(' &$-6' "#' @&' (,&!"&(' "#' ")&' *#' ,&%$ ' '.' +)#2+6' $1")#, L '.' $'(' !)$,. '.' ")&%' "#' 2&,8#,%' $--' +1!)' ,&C1 +"&' &,&%#' &+' 8#,' ")&' #'+&!,$" #'' #8' ")&' 5&,+#'' +#' "#' @&' $22# '"&(' ")&' 3&.,&&' $'(' 88 !&' #8' $' +)#2

E' 3 ' (#^ EDH/23 #' .' 2#6' +D/E #' I#GD/' 3"D' *D4/DD' .' 2' E" C' .' /DE GD#3' #' #G 2' 2C^ C #3DG' 3 ' 2' E" C/ H]

' ' '(

$ ' ' B ' ' (2C QV

+/ FE #' . /' &CD#HDE' .' E 323 #E

' '. ' @&' "' &'$!"&(6')$"' ")&' 92&'!&+' ' < + "$" #'+' "#' @&' %$(&' 8,#'"' %&' "#' %&' @?'A")&' +$ (' +)#2+' #8' ' $'(' ,&+2&!" 4&-?' +)$--' @&' 2$ (' @?' ")&' +$ (' #%2$'?' #1"' #8' ")&' D&4&'1&+' #8' ")&' +$ (' &,, "#, &+' >' 2,#4 (&(' ")$"' '#' .,&$"&,' 1%' #$' $!!#1'"' #8' +1!)' < + "$" #'+' @&' $"' $'?' %&' ++1&(' ")$"' +)$--' 8,#%' %&' "#' %&' @&' (&8 '&(' $'(' +&""-&(' @?' ")&' #1,"' #8' 3 ,&!"#,+' #8' ")&' +$ (' #%2$'?6' * ")' ")&' 22,#@$" #'' #8' ")&' #%% ++ #'&,+' 8#,' ")&' 8 $1+' #8' ,

) ' /H"^ GD2H #' #' #G 2' 3 ' "2FD' 2' 272/6' D&HDDG #4' !UUU' HH2' = I CDDE

-' '(' @&' "' &'$!"&(')$"' '#' ,!)(&$!#'')&,&$8"&,' "#' @&' $22# '"&(' 8#,' ")&' ,!)(&$!#',?' #8' ")&' 5,&+ (&'!?' #8' 1 ' / *' '' (' #,' ")&' ,!)(&$!#',?' #8' ")&' 5,&+ (&'!?' #8' 1 ' ' ' #,' ")&' ,!)(&$!#',?' #8' ")&' 5,&+ (&'!?' $'(' +-$'(' #8' (*" ' +)$--' ,&!& 4&' '' ,&+2&!"' #8') +' ,!)(&$!#',?' $'?' $-$,?' &9!&&('.'),&&' ")#1+$'(' !!$' 12&&+' ' *U' 5,#4 (&(' $-*$?+6' ")$"' ")&' *)#-&' 92&'!&' '!1,,&(' '' ,&+2&!"' #8' ")&' +$ (' +)#2+' $'(' ,!)(&$!#'+' +)$--' '#"' &9!&&(' '&')1'(,&(' $'('"*&'"?' ")#1+$'(' !!$' 12&&+' ' *,

Z ' ("2C^ 72 #E' .'3"D' ("I/H"' .' H 372#G' 3 ' OD' #' 3"D' E32O7 E"^ O D#3' .' D2H"' +/DE GD#H6

' '(' @&' "' &'$!"&(')$"' #8' ")&' +"$@- +)%&'"' #8')$2-$ '+' %$ '"$ '&(' @?' ")&' +$ (' #%2$'?' $"' &$!)' #8' ")&' 5,&+ (&'! &+' #8' ")&' +$ (' &,, "#, &+' *#')$2-$ '+' +)$--' $-*$?+' @&' ' +"&,+' #8' ")&')1,!)' #8' '$'(' +)$--')$4&' $'(' &'>#?' 8,#%' ")&' +$ (' #%2$'?' +1!)' $-$,?' $+' +)$--' 8,#%' %&' "#' %&' @&' $--#""&(' "#' ")&' -"$,?')$2-$ '+' $"' ")&' +&4&,$-' 5,&+ (&'! &+] 5,#4 (&(' $-*$?+6' ")$"' ")&' ' +"&,+' #8' ")&')1,!)' #8' ' "#' @&' $22# '"&(')$2-$ '+' $"' ")&' +$ (' 5,&+ (&'! &+' $+' $8#,&+$ (' +)$--' @&' #,($ '&(' $'(' '(1!"&(' @?' ")&' 5,&+@?"&,?' #8' . " ' $!!#,('.' "#' ")&' #,%+' $'(' #-&%N ' " &+' 1+&(' '' ")&')1,!)' #8' ' $'(' +)$--' @&' +1@>&!"' "#' ")&' 2 , "1$-' $'(' !!-&+ $+" !$-' R1, +(!" #'' '' $--') '.+' #8' ")&' 5,&+N @?"&,?' #8' . " ' *)#+&' R1(.%&'"+' +)$--' @&' +1@>&!"' "#' 3 ++&'"6' 5,#"&+"6' $'(' 22&$-' "#' ")&' 5,#4 '! $-' ?'#('#8' '$'('5$ ' $'(' "#' ")&' H&'&,$-' ++&%@-?' #8' ")&')1,!)' #8' U 5,#4 (&(' $-*$?+6' ")$"' '#") '.')&,& '' !#'"$ '&(' +)$--' @&' +#' !#'+",1&(' $+' "#' 2,&4&'"' ")&' H#4&,'#,' H&'&,$-' '' #1'! -' 8,#%' .,$'" '.' 8,#%' %&' "#' %&6' * ")' ")&' $'!"#'' #8' ")&' #1,"' #8' 3 ,&!"#,+' $'(' #8' ")&' #%% ++ #'&,+' 8#,' ")&' 88$,+' #8' "#' $'?' &!"6' 5&,+1$+ #'6' #,' #%%1' "?' #8'), +" $'+' '#"' @&' '.'#8")&' V ' "&(')1,!)' ' . ' $'(' ' #,' #8' ")&')1,!)' #8' +1!)' 1%+' #8' #'&?' $+' %$?' @&' &92&(&'"' 8#,' ")&' 51,2#+&' #8' '+",1!" #'' #,' 8#,' ")&' $ '"&N '$'!&' #8' 5-$!&+' #8' E#,+) 2

"D' FD/^ # /' D#D/27 #' (I#H 7 2##I2776' 3 ' O2]D' 2' C/ ^ ECDH3 FD' E3 ^ O 23D' .'3"D')IOOD/' .' 2H2#H DE' #' #G 2#' E^ 32O7 E" O D#3E

!% ' '(' *)&,&$+' "' +' &92&(&'"'"#' 2,#4 (&' 8#,' ")&' (1&' T1$- 8 !$N " #'' #8' 5&,+#'+' "#' @&' &%2-#?&(' '' ")&' 4-' &,4 !&' #8' ")&' +$ (' #%N 2$'?' '' ")&' +$ (' &,, "#, &+6' @&' "' "),&8#,&' &'$!"&(')$"' ")&' +$ (' H#4&,'#,' H&'&,$-' #8' ' '' #1'! - +)$--6' $+' +##'' $+' %$?' @&' $8"&,' ")&' ,+"' 3$?' #8' & ' '' &4&,?' &$,6' %$:&' $'(' ",$'+% "' "#' ")&' +$ (' #1,"' #8' 3 ,&!"#' +' $' 2,#+2&!"' 4&' +" %$"&' #8' ")&' 1%@&,' #8' 5&,+#'+' *)#6' '' ")&' 2 ' #'' #8' ")&' +$ (' H#4&,'#,' H&'&,$-' '' #1'! -6' * --' @&' '&!&++$,?6' '' $((" #'' "#' ")#+&' $-,&$(?' '' '#,' - :&-?' "#' ,&"1,' 8,#%' . ' "#' +122-?' ")&' &92&!"&(' <$!$'! &+' '' ")&' 4-' +"$@- +)%&'"+' #8' ")&' ,&+2&!" 4&' H#4&,'%&'"+' '' ' '' +1!)' #'&' #8' ")&' +1@+&C1&'"' &$,+' $+' +)$--' @&' 8 9&(' '' ")&' 1-&+' $'(&.1-$" #'+

L a B ' ' (2C 'QV

&.1-$" #'+')&,& 'B$8-&,'%&'" #'&(' $'(' "+)$--' @&' -$*81-' 8#,'")&' +$ ('
#$,(' #8' #%% ++ #'&,+' "#' ,&(1!&' +1!)' +" %$"&6' +#' ")$" ")&' &$+#'+'
8#,' +1!)' &(1!" #'' @&'. 4&'' "#' ")&' +$ (' #1," #8' 3 ,&!"#,+' $'(' '' ")&'
#'")' #8' & ' '' &4&,?' &$,6' 8' ")&' +$ (' +" %$"&' +)$--')$4&' @&&''
")&'' ,&!& 4&(' @?' ")&' +$ (' #$,(6' $'(' 8' '#"6' ")&'' * ") '' '&' #'")'
$8"&,' +1!)' +" %$"&' +)$--')$4&' @&&'' ,&!& 4&(6' ")&' +$ (' #$,(' #8' #%B'
% ++ #'&,+' +)$--' !&," 8?' "#' ")&' +$ (' #1," #8' 3 ,&!"#,+' *)$" 1%@&,'
#8' 5&,+#'+' +)$--' @&' '#% '$"&(' $+' $'(($"&+' 8#,' (% ++ #'6' $'('
*)$" 1%@&,' #8' "1(&'"+' +)$--' @&' $(% ""&(' "#' ")&' #--&.&' #8' ")&' +$ (' 7)$" 17,'
#%2$'?$") " ' '' ")&' ")&'' !1,,&'' &$,6' @1" +#' ")$" $" -&$+"
#1,' +1!)' $'(($"&+6' '#' #'&' #8' *)#%' +)$--' @&' 1'(&,' ")&' .&' #8'
&4&'"&&'' #,' $@#4&' ")&' .&' #8' *&'"?' &$,+6' @&' '#% '$"&(6' $'(' '#'
%#,&' ")$'' '&' "1(&'" $(% ""&(' 8#,' &4&,?' +1!)' &92&!"&(' <$!$'!?' ''
")&' +$ (' 4-' +"$@- +)%&'"+6' $!!#,(' '.' "#' +1!)' +" %$"&' #,' ,&(1!&('
+" %$"&' $+' $8#,&+$ (' ' $'(' " +)$--' @&' -$*81-' 8#,' ")&' +$ (' #1," #8'
3 ,&!"#,+' "#' '#% '$"&' +1!)' $' 1%@&,' #8' $'(($"&+' 8#,' (% ++ #''
"#' ")&' +$ (' #--&.&' $+' +)$--' @&' %&'" #'&(' '' ")&' &," 8 !$"&' #8' ")&'
+$ (' #$,(' ' $'(' 8' ")&' +$ (' #1," #8' 3 ,&!"#,+' +)$--' '#" * ") '' '&'
#'")' $8"&,' ")&' &!& 2" #8' +1!)' &," 8 !$"&' '#% '$"&' ")&' *)#-&'
1%@&,' %&'" #'&(' ")&,& '6' " +)$--' @&' -$*81-' 8#,' ")&' +$ (' #$,(' #8'
#%% ++ #'&,+' "#' '#% '$"&' +#' %$'?' $+' +)$--' @&' '&!&++$,?' "#' +122-?'
")&' 3&8 ! &'!?

2/G' 3 '
*)$'
OD (2#G G23DE'
. /' G O EE #'
3 >2] 6O I /6'
E"27' OD' 2G '
O 33DG' I '

<' '(' @&' "&'$!"&(')$" *)&'' $'(' +#' #8"&'' $+' $'?' <$!$'!?'
+)$--')$22&'' '' ")&' 1%@&,' #8' "1(&'"+' '' ")&' +$ (' #--&.&' @?'
3&$")6' 921-+ #'6' #,' &+ .'$" #'' " +)$--' @&' -$*81-' 8#,' ")&' +$ ('
#$,(' #8' #%% ++ #'&,+' "#' $((' '' ,&+2&!" #8' &4&,?' +1!)' <$!$'!?'
'&' "#' ")&' 1%@&,' #8' "1(&'"+' "#' @&' $(% ""&(' $'(' #1,' "#' ")&'
1%@&,' #8' $'(($"&+' 8#,' (% ++ #'' "#' @&' '#% '$"&(' @?' ")&' +$ ('
#1," '' ")&' 8#--#* '.' &$,

GG 3 #27'
3 I GD#3E' 3 '
OD' 2G O 33DG'
4$!$'! &+'

<' '(' @&' "&'$!"&(6')$" ")&' +$ (' $'(($"&+' 8#,' (% ++ #''
"#' ")&' +$ (' #--&.&' +)$--' @&' +1@>&!"&(' "#' $'' 9$% '$" #'' '' +1!)'
,$'!)&+' #8' D'#*-&(.&' $'(' @?' +1!)' 9$% '&,+' $+' ")&' +$ (' #$,('
+)$--' (,&!"6' $'(' +)$--' @&' !-$++&(' '' $' +' "#' @&' 2,&2$,&(' @?' ")&'
9$% '&,+6' $'(' ")&' $'(($"&+' *)#+&' $%&+' +)$--' +"$'(') .)&+" ''
+1!)' +' +)$--' @&' $(% ""&(' @?' ")&' +$ (' #1," $+' "1(&'"+' '' ")&'
+$ (' #--&.&' 1'"-' ")&' 1%@&,' "#' @&' $(% ""&(' 8#,' ")$" &$,6' $!N
!#,('.' "#' ")&' &," 8 !$"&' #8' ")&' +$ (' #$,(6' @&' +122- &(

"D' (2#G '
G23DE' . /'
G O EE #' 3 '
q
2 O #23 #'
2#G' H72EEDG!'

< ' '(' @&' "81,")&,' &'$!"&(')$" " +)$--' @&' -$*81-' 8#,' ")&'
+$ (' #$,(' #8' #%% ++ #'&,+' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' 8#,")*")'
$8"&,' ")&' 2$++ '.' #8' ") +' !"6' "#' 8#,%' +1!)' 1-&+6' &.1-$" #'+6' $'('
5,#4 + #'+' 8#,' ")&' H1 ($'!&' #8' ")&' +$ (' H#4&,'#,' H&'&,$-' ''
#1'!-' '' ")&' #,%$" #'' #8' ")&' +" %$"&')&,& 'B@&8#,&' %&'" #'&(6'
$'(' 8#,' ")&' .##(' H#4&,'%&'' #8' ")&' +$ (' #--&.&6' $+' '' ")&,'
R1(.%&'' +)$--' $22&$,' @&+" $($2"&(' "#' +&!1,&' 8 " $'(($"&+' 8#,'
(% ++ #'' '"#' ")&' +$%&6' $'(' 8#,' ")&' 9$% '$" #'' $'(' T1$- 8 B'
!$" #'+' #8' +1!)' $'(($"&+6' $'(' #8' ")&' "1(&'"+' #8' ")&' +$ (' #--&.&6'
$8"&,' ")&?' +)$--')$4&' !#%2-&"&(' ")&' &+ (&'!&' ")&,&6' $'(' 8#,'
")&' 22#'"%&'' $'(' &%1'&,$" #'' #8' 2,#2&,' 9$% '&,+' $'('
+1!)' 5-$'6' 1-&+6' $'(' &.1-$" #'+' $'(' 5,#4 + #'+' ,&+2&!" 4&-?' +)$--
@&' +1@%""&(' "#' +' $>&+"?' '' #1'!-' 8#,')+' &4 + #'' $'(
22,#@$" #''>

"D' 2/G' 3 '
./2 O D' = I 7DE'
&7 #-7&'
2#G' 3"D' 3 '
2 O #23 #'
H2#G G23D !'

' ;' B ' ' (2CWQ V

22,#@$" #' ' $'(' *)&'' ")&' +$%&' +)$--')$4&' @&&'' +#' ,&4 +&(' $'('
$22,#4&(' @?' +' $>&+"?' '' #1'! -6' ")&' +$%&' +)$--' '#"' $8"&,*$,(+'
@&' $-"&,&(' #,' ,&2&$-&(6' &9!&2"' @?' ")&' +$ (' #$,(' #8' #%% ++ #'&,+6'
* ")' ")&' 22,#@$" #'' #8' +' $>&+"?' '' #1'! -6

3IGD#3E' 3 '
OD' D&2O #DG'
2#G' H72EEDG

&4 -' '(' @&' "' &'$!"&(6')$"' $"' ")&' 92 ,$" #'' #8' +1!)' %&' $+'
+)$--' @&' 8 9&(' @?' +1!)' 1-&+6' &.1-$" #'+6' $'(' 5,#4 + #'+' %$(&' $+'
$8#,&+$ (6' +#' %$'?' #8' ")&' +$ (' "1(&'"+' \$+' +)$--')$4&' $' &," 8 !$"&'
8,#%' ")&' +$ (' #--&.&' #8' .##(' #'(1!"' (1,'.' ")&' &,%' #8' ")&,'
&+ (&'!&' ")&,& '' +)$--' @&' +1@>&!"&(' "#' $'' 9$% '$" #'' '' ")&'
"1(&+' 2,#+&!1"&(' '' ")&' +$ (' #--&.&6' $'(' +#' %$'?' #8' ")&' +$ ('
"1(&'"+' $+' +)$--' $22&$8' (1-?' C1$- 8 &('+)$--' @&' !-$++&(' $!!#,('.' ' '

"D' 3IGD#3E'
3 ' EICC76' 3"D'
I &2H2#H DE' #'
3"D' D/F HD'
2HH /G #4' 3 '
+/ /36' #'
3"D' E3!' 2#G'
3 ' H" ED'
3"D /' +/DE ^
GD#H DE

&,"' '' $' +"' "#' @&' 2,&2$,&(' @?' ")&' 9$% '&,+6' $'(' +)$--' @&'
'#% '$"&(' "#' +122-?' ")&' <$!$'! &+' '' ")&' 4-' +"$@-+)%&'"+' ''
' $'(')$4&' &' #,"?' ")&,& '' $!!#,('.' "#' ")&,' 2, #, "?' '' ")&'
+$ (' +"' ' $'(' 8' ")&,&' +)$--' @&' $"' ")&' +$%&' %&' <$!$'! &+' '' ")&'
+"$@-+)%&'"+' #8' %#,&' ")$'' '&' #8' ")&' +$ (' 5,&+ (&'! &+6' ")&'
"1(&'"+' #'' ")&' +$ (' +"' +)$--6' $!!#,('.' "#' +1!)' 5, #, "?6')$4&'
")&' .)"' #8' &-&!" '.' "#' *) !)' #8' ")&' +$ (' +"$@-+)%&'"+' ")&?' * --'
@&' $22#' '"&(

2#H3 #' .'
CC #3O D#3' #,'
.'+/ .DEE /E!'

< ' '(' @&' "' &'$!"&(6')$"' '#' 22# '"%&'"' #8' $'?' 5,#8&++#,'
&$!)&,' $"' ")&' +$ (' #--&.&' +)$--' @&' 4$- (' #,' &88&!"1$-' 1'"-' ")&'
+$%&' +)$--')$4&' @&&'' $22,#4&(' @?' ")&' #$,(' #8' #%% ++ #'&,+

77' + ZD/E'
.' (I/3' .'
* /DH3 /E' 3 '
OD' EI O5DH3' 3 '
3"D' (#3/ 7'
.'3"D' 2/G'
D&HDC3'
+23/ #24D

' '(' @&' "' &'$!"&(6')$"' &4&,?' 5#*&,6' 1")#, "?6' $'('
1'!" #'' @?' ")+'#,'$'?' #")&,' !"' #,' !"+' . 4&'' "#' $'(' 4&+"&(' ''
")&' +$ (' #1,"' #8' 73 ,&!"#,+' +)$--' @&' (&&%&('$'(' "$:&'' "#' @&' +1@>&!"'
"#' +1!)' #'",#-' #8' ")&' +$ (' #$,(' #8' #%% ++ #'&,+' $+' '' ") +' !"' +'
%&'" #'&(6' 1'-&++' ")&,&')$--' @&' +#%&") '.' '' ")&' '$!"%&'"+' !#'N
8&,, '.' +1!)' 5#*&,+6' 1")#, 8"&+6' #,' 1'!" #'+' '!#'++"&'"' * ")' +1!)'
#'+",1!" #'6' $'(' &9!&2"' $+' "#' $'?' 5$",#'$.&' #,' .)"' #8' $22# '" '.'
"#' 88 !&' 4&+"&(' '' ,&+&,4&(' "#' ")&' +$ (' #1,"

2/G' .'
(#3/ 7' C/ ^
" O 3DG' ./ O'
G /DH3 #4' 3"D'
/2#3' .'
77 Z2#HDE

' 5,#4 (&(' $-*$?+6' $'(' @&' "' &'$!"&(6')$"' '#") '.')&,& ''
!#'"$ '&(' +)$--' @&' !#'+",1&(' "#' &'$@-&' ")&' +$ (' #$,(' #,'%+AB'
+ #'&,+' "#' . 4&' #,' !$1+&' "#' @&' . 4&'' 3 ,&!" #'+' #,(&, '.' #,' $1")#A'
, L '.' ")&' 5$?%&'"' #8' $'?' &9",$#,('$,?' --#*$'!&' #,' H,$"1 "?6' #,'
")&' '!,&$+&' #8' $'?' &+"$@-+)&(' $-$,?6' --#*$'!&6' #,' %#-1%&'"6'
1'-&++' '' ")&' $+&+' $'(' +1@>&!"' "#' ")&' 5,#4 + #'+' '' $'(' +1@>&!"' "#'
*) !)' +1!)' 3 ,&!" #'+' %$?' '#*' @&' . 4&'' @?' ")&' +$ (' #$,(6' #,' "#'
'!,&$+&' ")&' 1%' '#*' 2$?$@-&' @?' ")&' +$ (' #%2$'?' #'' $!!#1'' #8'
")&' +$ (' #$,(6' &9!&2"' #'-?' @?' +1!)' $-$, &+' #,' --#*$'!&+' $+' +)$--'
@&' 2$?$@-&' "#' ")&' 88 !&,+' "#' @&' $22# '"&(' $+')&,& 'B@&8#,&' +' %&'N
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' '(' @&' "' &'$!"&(')$"' *)&'&4&,' '' ") +' !"6' #,' '' $'?'
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#8' . ' ",$('.' "#' ")&' . ' ' $'(' ")$"' ")&' +$ (' V ' "&('
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'")& +$ (+-$'(6 $'($-- "#,&+ $'(5,#2&,"? ")&,&#' 8 " #, 1+&(,#*'6
8#, ")& &,4 !& #8 ")& H#4&,'%&'" ")&,&#86 +)$-- @& 4&+"&(' +
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"#.&")&, * ") ")& -$"&+" +" %$"& #8 ")& +$%&6 $'($-+# ")& %#1'"
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O D#3!' 2#' 2#^
#I2'7 IO'. /'
+26 O D#3'
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%&'"' $++&%@-&(6' $'(' @?' ")&' 1")#, "?' #8' ")&' +$%&6')$"' "' +)$--' @&' -$*81-' 8#,' ")&' #%% ++#'&,+' #8' +' $>&+"?;+' ,&$+17' #8' ")&' V' "&(' D '.(#%' #8' ' (' $'(' ' #,' $'?'),&&' #,' %#,&' #8' ")&%6' 8,#%' %&' "#' %&' "#' (,&!"' $'(' $1")#, L&' ")&' #%% ++#'&,+' #8' +' $>&+"?;+' E##(+6' #,&+"+6' $'(' &4&'1&+6' E#,:+6' $'(' 1 -('.+' "#' 2$?' $'(' $22-?6' #1"' #8' ")&' 5,#(1!&' #8' ")&' &,&("$,?' $'(' &4&'1&+6' E##(+6' $'(' #,&+"+' #8' ")&' ,#*'' 1'(&,' ")&,' $'$.&%&'"6' $'' $''1$-' 1%' 'V"' &9!&&('.' '' ")&' *)#-&' 9' ")#1+$'('#'&')1'(,&(' $'(' 8 8"?B+&4&'' 5#1'(+' &4&'"&&'') -- '.+' $'(' .)"B2&'!&6' 8#,' ")&' 5$?%&'"' #8' (4&,+' $'! &'"' 5&,2&"1 " &+6' H,$'"+6' " 2&'(+6' $-$, &+6' $'(' --2*$' &+' *) !)' 2, #,' "#' ")&' !!&++#'' #8' +' 2,&+&'"' $>&+"?')$(' @&&'' !)$,.&$@-&' #'' $'(' 2$ (' #1"' #8' ")&' 4 -' +"' &4&'1&+' #8' (* ' $ T ' $'(' 8#,' *) !)' '#' 5,#4 + #'')$+' @&&'' %$(&' @?' ")&' +$ (',&! "&(' !"+'>' ")&' +$ (')$,.&' "#' !#%%&'!&' $'(' "$:&' &8&!"6' $'(' "#' @&' 2$ (' $'(' 2$?$@-&6' 8,#%' ")&' 8")' 3$?' #8' ' '&' ")#1+$'('& .)"')1'(,&(' $'(' ") ,"?B"*#'] 5,#4 (&(' $-*$?+6' ")$"' '#") '.')&,& '' !#'"$ '&(' +)$--' $1")#, L&' ")&' #%% +N +#'&,+' #8' ")&' ,&$+1,?' "#' . 4&' #,' .,$'"' $'?' .,&$"&,6') .)&,6' #,' #")&,' '"&,&+"' '' $'?' #8' ")&' +$ (' 5&,2&"1 " &+6' H,$'"+6' " 2&'(+6' $-$, &+6' $'(' --#*$'!&+6' ")$'' ")&' 5$," &+' ,&+2&!" 4&-?' &'" "-&(' ")&,&"#')&-(' #,' &'>#?&(' 1'(&,' ")&' H,$'"+' '' 8#,!&' $"' ")&' %&' #8' ")&' 3&!&$+&' #8' +' -$"&' $>&+"?

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277 33DG!ʿ E 7G!ʿ G F GDG!ʿ /ʿ D&H"2#4DGʿ I#GD/ʿ H3Eʿ
.ʿ #H7 E I /D!ʿ #ʿ H #ED\ I D#HDʿ .ʿ 3"Dʿ Z2/Gʿ # 3ʿ
"2F #4ʿ ODD#ʿ #/ 77DG!ʿ /ʿ # 3ʿ "2F #4ʿ ODD#ʿ #/ 77DGʿ
Z 3" #ʿ 3"Dʿ O Dʿ 7 O 3DGʿ O6ʿ 3"Dʿ EDFD/27ʿ H3Eʿ N 2#Gʿ
. /ʿ 2 I 3" / d #4ʿ 3"Dʿ CC #3 O D#3ʿ .ʿ #DZʿ (O O E^
E #D/Eʿ #ʿ HD/32 #ʿ (2EDEʿ Z "D/Dʿ 3"Dʿ E2 O Dʿ E"277ʿ "2FDʿ
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21,+1$'!& #8 $'? !" #8 '!-#+1,&6 $'(*) !))$+ 2#" @&&' ',#--&(6
#, *) !))$+ '#" @&&' ',#--&(* ") ' ")& %& - % "&(@? ")& !"
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77 Z2/GE 27/D2G6 O2GD O I3 # 3 # / 77DG E"277! ./ O 3"D &DHI3 # 3"D/D .'OD 2E F27 G 2E . #/ 77DG Z 3"^ # 3"D OD 7 O 3DG O6 3"D H3

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#1,"+ #8 &!#,($" / * #, @? ")& -&,: #8 ")& 5&$!&
#8 ")& #1'"?6 (' .6 3 4 + #'6 #:&6 #, 5-$!& ' *) !) ")& $'(+
"# *) !) +1!) *$,(+)$-- ,&-$"& $,& + "1$"&(6 "# ")& &'(")$"
&!#1,+& %$? @&)$(")&,&"# @? $'? 5&,+#' #, 5&,+#'+ '"&,&+"&(
")&,& '6 8#, ")& '+2&!" #' $'(5&,1+$- *)&,&#8 '# %#,& ")$' '&
) -- ' . +)$-- @& 2$ ($'($ #2? #8 +1!) *$,(*)&' +# ',#--&(6
#, #8 $'? 5$," ")&,&#86 + .'&(@? ")& 2,#2&, 88 !&, #8 ")& #1,"
*)&,& ' ")& +$%& +)$-- @& ',#--&(6 #, @? ")& -&,: #8 ")& 5&$!&B 8#,
+1!) #1'"?6 (' .6 3 4 + #'6 #:&6 #, 5-$!&6 #,) + 2&21"?6
21,2#," ' . ")& +$%& "# @& $",1& #2?6 +)$-- 8,#% %& "# %& @&
%$(& $'((&- 4&,&(@? +1!) 88 !&, #, -&,: #8 ")& 5&$!& 8#, ")&
%& @& ' .6 #,) + 3&21"?6 "# $'? 5&,+#' #, 5&,+#'+ ,&C1&+" ' . ")&
+$%&6 8#, *) !) '#B %# & +)$-- @& 2$ (")$'),&&B2&'!& 8#, &4&,?
)&&" #8 &4&'"?B"*# E #,(+ $'(&4&,? *$,($-,&$$(? %$(&6
*)&")&, ',#--&(#, '#"6 $'(&4&,? #2? #8 +1!) *$,(*)&'
',#--&($+ $8#,&+$ (6 #, #8 $'? 5$," ")&,&#86 + .'&($+ $8#,&+$ (6 +)$--
$" $-- %&+ @& $(% ""&($'($--#*&(' $-- #1,"+ *)$"+#&4&, $+
-&.$- 4 (&'!&

(C6 .2#6 Z2/G E #/ 77DG 2#G E 4#DG O6 3"D C/ CD/ '..^ HD/ 3 'OD GD7 FD/DG 3 2#6 +D/E # /D\I / #4 3"D E2OD

'(@& " 81,")&, &'$!"&( )$" 8 $'? #%% ++ #'&, +)$--
@& (&$(#, '!$2$@-& #8 $!:'#*-&(. ' .) + *$,(@&8#,& +1!)
W)$- @& ',#--&(6 ")& +$%& *$,(%$? @& ',#--&(* ")#1"

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3&&(+^ 77& !:'#*-&(.%&'" #8 +1!) #%% ++ #'&,6 #' (1& 5,##8 @& '.
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. 4&'' ")$" +1!)' *$,(' +' ")&' 3&&(' #,' '+",1%&'" #8' +1!)' #%N
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<' '(' @&' " 81,")&,' &'$!"&(6')$" *)&,&' $'?' *$,(' $-,&$(?' +'"#")&
%$(&' $'(' &9&!1"&(' 1'(&,' #,' '' 21,+1$'!&' #8' $'?' !" #8' '!-#+1,&' + EEDEE #'
+)$--' @&' (&2#+ "&(' '' $'?' 5$, +)')1,!)6' " +)$--' @&' !#'+ (&,&(' $+'
'' ")&' 1+"#(?' #8' ")&' 88 ! $" ' .' ' +"&,' $'(')1,!) *$,(&'+' 8#,' 2#+ "&(6'
")&' %&' @& ' .' #8' +1!)' 5$, +)')1,!)' ' $'(' *)&,&' $'?' +1!)' *$,('
+)$--' @&' '' ")&' 5#++&++ #'' #8' ")&' #,(' #8' $'?' $'#,' "#' #,' 8#,'
*)#%6' #,' "#' #,' 8#,' $'?' 2,&!&(' .' #,(' #8' *) !)' $'#,6' $'?' --#"N
%&'" +)$--')$4&' @&&'' %$(&' 1'(&,' +1!)' *$,(6' #,' '' ")&' 5#++&++ #''
#8' ")&' "&*$,(' #8' +1!)' $'#,6' " +)$--' @&' !#'+ (&,&(' $+' '' ")&'
1+"#(?' #8' ")&' #,(' #8' +1!)' $'#,' 8#,' ")&' %&' @& ' .' $'(' ")&'
"&*$,(' +)$--6' *)&'' ,&C1 ,&(6' (&- 4&,' 12' ")&' +$%&' $!!#,(' .-?' $'('
")&' +$ (' ' +"&,' $'(')1,!) *$,(&'+6' #,' #,(6' $+' ")&' $+&' %$?' @&6'
+)$--' 8,#%' %&' "#' %&6' 12#'' ")&' &C1&+"' #8' $'?' 5&,+#'' #,'
5&,+#'+' '"&,&+"&(' '' $'?' --#"%&'" #,' --#"%&'"+6' #,' #")&,* +&6'
1'(&,' +1!)' *$,(6' !$1+&' ")&' +$%&' "#' @&' 2,#(1!&(' 8#,' ")&' '+2&!" #''
#8' +1!)' 5&,+#'' #,' 5&,+#'+' #'' @& ' .' 2$ (' @?') %6')&,6' #,' ")&%' $'
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$-+#' !$1+&' ")&' +$%&' "#' @&' 2,#(1!&(' 8#,' ")&' 51,2#+&' #8' @& ' .' ',#--&(6'
#,' '$'?' #1," #8' $*' #,' C1 "?6' #,' #" $'?' #")&,' !!$+ #'6' 8#,' ")&'
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<' '(' @&' " 81,")&,' &'$!"&(6')$" *)&,&' $'?' +1!)' *$,(' $+' +/ C/ D3 /E'
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'' *) !)' ")&' $'(+' "#' *) !)' +1!)' *$,(' +)$--' ,&-$"&' $,&' + "1$"&(6' Z2/GE' 3 ' OD'
$'(' +)$--' '#" @&' '' ")&' 5#++&++ #'' #8' ")&' #,(' #,' "&*$,(' #8' $'?' GDC E 3DG' #'
$'#,' "#' #,' 8#,' ")&' 2,&+&'" #,' $'?' 2,&!&(' .' #,(' #8' *) !)' $'#,' 3"D' (7I / '
$'' --#"%&'" +)$--')$4&' @&&'' %$(&' 1'(&,' +1!)' *$,(6' @1" +)$--' @&' /' Z 3"' 7 /D'
'' ")&' 5#++&++ #'' #8' $'?' #")&,' 5&,+#'6' " +)$--' @&' -$*81-' 8#,' $'?' 5&,N /G' .'3"D'
+#'' #,' 5&,+#'+' '"& ;&+"&(' '' $'?' --#"%&'" #,' --#"%&'"+6' #,' #")&,N B2# /
* +&6' 1'(&,' +1!)' *$,(6' "#' ,&C1 ,&' ")&' +$%&' "#' @&' (&2#+ "&(' '' ")&'
5$, +)')1,!)' #8' ")&' 5$, +)' '' *) !)' ")&' $'(+' "#' *) !)' +1!)' *$,('
+)$--' ,&-$"&' $,&' + "1$"&(6' $'(' ")&' 5&,+#'' '' *)#+&' 5#++&++ #'' ")&'
+$%&' +)$--' @&' +)$--6' #'' +1!)' &C1&+"6' (&- 4&,' 12' ")&' +$%&' "#' ")&'
' +"&,' $'(')1,!) *$,(&'+' 8#,' ")&' %&' @& ' .' #8' +1!)' 5$, +)'
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<' '(' @&' "81,")&,' &'$!"&(')$" '' $--' $+&+' *)&,&' '' #,' @?' +/ F G #4'
P(,"1&' #8' $'?' !" #,' !"+' #8' '!-#+1,&')&,&"#8#,&' 2$++&(' 5,#4 + #'' . /' CC #3'
)$")' @&&'' %$(&' 8#,' ")&' -&!" #'6' #% '$" #'6' #,' 22# '"%&'"6' * ") '' O D#3 .'(O^
$' %&' ")&,& '' - % "&(' #,' (,&!"&(6' #8' $' '&*' #%% ++ #'&,' #,' #%N O EE #D/E' 3P
% ++ #'&,+' '' ")&' 4&'" #8' ")&' 3&$")6' &81+$-6' #,' &.-&!" "#' $!" #8' (2EDE' Z"D/D'
")&' #%% ++ #'&,' #,' #%% ++ #'&,+' $22# '"&(' @?' #,' @?' 4 ,"1&' #8' 3"D6' "2FD'
+1!)' !" #,' !"+6' #,' #8') +' #,' ")&,' @&!#% ' .6' @?' ,&$+#'' #8' @+&'!&' ODD#' #D4^
@&?#'(' ")&' &$+6' #,' #")&,* +&6' '!$2$@-&' #8' $!" ' .' '' ")&' 9&!1" #'' 7DH3DG' /'
#8' ")&' 5#*&,+6' 1")#, " &+6' $'(' ,1+"+' '' +1!)' #%% ++ #'&,' #,' O 33DG' 3 '
#%% ++ #'&,+' 4&+"&(' $'(' ,&2#+&(6' @&8#,&' ")&' +$%&' $'(' &4&,?' #8' OD' O2GD
")&%' +)$--')$4&' @&&'' 81--?' &9&!1"&(' $'(' 2&,8#,%&(6' $'(' *)&,&' $'?'
+1!)' -&!" #'6' #% '$" #'6' 22# '"%&'" $+' $8#,&+$ (6' #,' $'?' #8'
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< ʿ 5,#4 (&(ʿ $-*$?+6ʿ $'(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ '#") '.ʿ)&,& 'ʿ !#'"$ '&(ʿ +)$--ʿ &9"&'(ʿ "#ʿ $88&!"ʿ $'?ʿ 21@- !ʿ .)"6ʿ #,ʿ #")&,*+&ʿ "#ʿ .4&ʿ $'?ʿ .,&$"&,ʿ #,!&ʿ #,ʿ <$- ("?ʿ "#ʿ $'?ʿ *$,(ʿ $-,&$(?ʿ %$(&ʿ &9&!1"&(ʿ 1'(&,ʿ '/ʿ 'ʿ 21,+1$'!&ʿ #8ʿ $'?ʿ !"ʿ #8ʿ '!-#+1,&6ʿ ")$'ʿ +1!)ʿ *$,(ʿ *#1-(ʿ)$4&ʿ)$(ʿ 8ʿ ") +ʿ !"ʿ)$(ʿ '#"ʿ @&&'ʿ %$(&6ʿ &9!&2"ʿ +#ʿ 8$,ʿ $+ʿ ,&+2&!"+ʿ ")&ʿ +&4&,$-ʿ 3&88&!"+ʿ)&,& 'B@&8#,&ʿ ,&+2&!" 4&-?ʿ +2&!8 &(ʿ $'(ʿ 2,#4 (&(ʿ 8#,

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' ' Z' TV

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(+ '

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3"D#HD' 3 ' 3"D' #G' .' 3"D' 3"D#' #D&3' DEE #' .'
+2/7 2 0 D#3!' 2#' H3' .' 3"D' A .36 # #3"' - D2/' .'
? #4' ' 3"D' " /G!' . /' .2H 7 323 #4' 3"D' = D^
H FD/6' .'3"D' @ 24DE' .' D2 0 D#' #' 3"D' B D/H"2#3E'
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@ ' $'' !"' *$+' 2$++&(' '' ")&' 8"?B' '")' &$,' #8' +' -$"&' $>&+"?' D '.' ' ")&') ,(6' 8#,' 8$! - "$" '.' ")&' &!#4&,?' #8' ")&' E$.&+' #8' &$%&'' '' ")&' &,!)$''' &,4 !&' *) !)' !"' *$+6' @?' $'#")&,' !"' 2$++&(' '' ")&' &4&'")' &$,' #8' ")&' & .'' #8' +' -$"&' $>&+"?' D '.' ' ")&' #1,")6' !#'" '1&(' 8#,' $' &,%' #8' &4&'' &$,+'] '(' *)&,&$+' "' +' &92&(&''' ")$"' ")&' +$ (' 8 ,+"B%&'" #'&(' !"' +)#1-(' @&' !#'" '1&(' 8#,' $' 81,")&,' &,%'] &' "' ")&,&8#,&' &'$!"&(' @?' ")&' D '.;+' %#+"' 9!&--&''' $>&+"?6' @?' $'(' * ")' ")&' (4 !&' $'(' #'+&''' #8' ")&' #,(+' 2 , "1$-' $'(' &%N 2#,$-6' $'(' #%%#'+6' '' ") +' 2,&+&''' 5$,- $%&''' $++&%@-&(6' $'(' @?' ")&' 1")#, "?' #8' ")&' +$%&')$"' ")&' +$ (' !"' #8' ")&' 8"?B' '")' &$,' #8' +' -$"&' $>&+"?' D '.' ' ")&') ,(6' 8#,' 8$! - "$" '.' ")&' &!#4&,?' #8' ")&' E$.&+' #8' &$%&'' '' ")&' &,!)$''' &,4 !&6' +)$-- @&' $'(' ")&' +$%&' +')&,&@?' 81,")&,' !#'" '1&(' 8#,' &4&'' &$,+6' "#' @&' !#%21"&(' 8,#%' ")&' 2$++ '.' #8' ") +' !"6' $'(' 8,#%' ")&'!&' "#' ")&' '(' #8' ")&' ")&'' '&9"' &++ #'' #8' 5$,- $%&''

"D' H3'
0 I H 0 '
. /' .2H 7 323^
#4' 3"D' = DH ^
FD/6' .'@24DE
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3] 5, '"&(' @?' ' ' $'(' ' '
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#' H3' 3 ' 2 I 3" / dD' 3"D' EE I D' .' 2' I O' .' B #D6'
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@ ' $'' !" *$+' 2$++&(' '' ")&' &'")' &$,' #8' ")&' & . '' #8' +' -$"&' $>&+"?' D ' .' ' ")&' #1,")6' '" N "1-&(' ' ' ' * ' ' > ' ' ' ' ' - HQ !FQQ'
'U ' (' *)&,&$+' '' *$+' $%#' .' #")&,') ' .+' ")&,& '' &'$!"&(6'
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!) $-' #,' 9",$B2$,#!) $-6' * ") '' ")&' &",#2#- "$'' 5#- !&' 3 +", !"6' ''
+)#1-(' @&' -$*81-' 8#,' ")&' R1+" !&+' $22# '"&(' 1'(&,' ")$'' !'' 8#,") * ")6'
$'(' +#' 8,#%' %&' "#' %&6' +1@>&!'' "#' ")&' 22,#@$"#'' #8' '&' #8' +'
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$'(+' "#' ")&' 4&,+&&,+' #8' ")&' 5##,' #8' &4&,?' +1!)' 5$, +)6' #*'+) 26
5,&! '!"6' #,' 5-$!&6' @?' *) !)' E$,,$''' ")&?' +)#1-(' !#%%$'(' ")&' +$ ('
4&,+&&,+6' #1'' #8' ")&'' #'&?' !#--&!"&(' 8#,' ")&' &- &8' #8' ")&' 5##,'
'' +1!)' 5$, +)6' #*'+) 26' 5,&! '!"6' #,' 5-$!&6' "#' 2$?' ")&B %#1'''
%&'"#'&(' '' ")&' E$,,$''' 8#,' ")&' 51,2#+&+' #8' ")&' 5#- !&' 1'(&,'
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+2&!"#,+' $22# '"&('1'(&,'")&' 1")#, "?' #8'")&' +$ (' ,&! "&(' !"' +)$--'
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H3' 2CC7 ' H2O7D' 3 ' 277' +2/ E"DE

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"' &'$!"&(6')$"' ")+' !"6' $'(' ")&' +&4&,$-' 5,#4 + #'+' ")&,&#86' +)$--'
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)&,& '' !#'"$ '&(6' @?' $--'#,'$'?'#,' &")&,'#8'")&' 5$, +)&+' ''. '
$'(' / ' 6'
A

'#' CC7 H2^ 3 #' .' "/DD' /23DG' #"2^ O 32#3E!' (7 I/H"Z2/' GD#E' 3 ' H #FD#D' 2' B DD3 #4' # DE3/6' 3 ' GD3D/O #D' Z"D3"D/'3"D' +/ F E #E' .' 3" E' H3' E"277' OD' 2G C3DG

<' '('@&' "'81,")&,'&'$!"&(')$"' 8,#%7$11' $8"&,'")&' 2$++ '.' #8'
")+' !"6' 12#'' ")&' 22- !$"#'' '' E, "'.' #8'),&&' #,' %#8&' #8'")&'
$"&B2$?&,+' #8' $'?' 5$, +)66' "' +)$--' @&' -$*81-' 8#,'")&')1,!)*$,(&'+'
")&,&#86' $'(' 3"D6' $,&B)&,&@?' ,&C1 ,&(6' *") '' &'' 3$?+' $8"&,'")&'
&!& 2"' #8' +1!)' 22- !$"#'' $+' $8#,&+$ (6' "#' $22# '")'(' '#" 8?' $'
%&' $'(' 5-$!&' 8 ,' $A 21@- !' &&" '.' #8'")&' $"&B2$?&,+' #8'")&' +$ ('
5$, +)6' 8#,'")&' 51,2#+&' #8' (&"& % ' '.' *)&")&,'")&' 5,#4 + #'+' '
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+$ (' 5$, +)] 5,#4 (&(B$-*$?+6' ")$"' ")&' %&' $22# '"&(' 8#,')#-('.'
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@?'")&' $"&B2$?&,+' 2,&+&'"' +)$--' 2,&+ (&' $+')$,%$'' $"' +1!)' &&"N
'.+'' $'(")$"' 8'$'?' #'",#4&,+?' +)$--' $, +&' $"' $ '>' +1!)' &&" '.' $+'
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4 + #' #8 ") + !"6 $+)&,& ' +&" 8#,")6 +)$-- #, +)$-- '#" @& $(#2"&(E"277 @&
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#8") + !" +)$-- @& $(#2"&(6 ")&' $'(+1!) $+& +1!) 5,#4 + #' +/ F E #E .
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5$ +) $'("+)$-- 8#,") * ") @& (&"&,% '&(")$" $!&,"$ ' 1%@&, 3"D#HD. /3"
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+$ (5$, +)] 5,#4 (&('&4&,")&-&++6 ")$" $'? 4& ,$"&(')$@ "$'"+6 + 77 #726 OD
C1$- 8 &("# 4#"& $+)&,& ' %&'" #'&(6 %$?6 $" +1!) &&" ' . #, (N GD O 2#GDG 2E
>#1,'%&'" ")&,&#87 ' E , " ' . 4&' "# ")&)$,%$' #8 ")& +$ (3 G C3 #
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' ' ' #,' 1 ' $'(' '' ")$" $+&' "#' ")&' 3$?' 8#--# '.6' $'(' ")&'' 2,#!&&(' "#' !#--&!" $'(' ,&. +"&,' <#"&' $+' 5&,+#'+' (1-?' C1$- 8 &(' $'(' $22-? '.' "#' 4#"&' 2,#4 (&(' '&4&,")&-&++6' ")$" ")&' 5#--' +)$--' 8 '$--? !-#+&' $" #1,' #8' ")&' -#!:' #'' ")&' 3$?' "#' *) !)' +)$--')$4&' @&&'' $(>#1,'&(6' #,' +##'&,6' 2,#4 (&(6' $'(' 5&,+#'+' (1-?' C1$- 8 &(' $'(' (&+ ,#1+' "#' 4#"&' +)$--')$4&' 4#"&(6' $'(' $8"&,' ")&' $2+&' #8' '&' #1,' * ")#1" $'?' 5&,+#'' #88&,' '.' "#' 4#"&' $'(' $+' ##' %$?' @&' 2#++ @-&' ")&' &+1-" ")&,&#8

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")&,&#8' +)$--' @&' (&!-$,&(' $"' ")&' 5-$!&' *)&,&' ")&' -&!" #'' %$?')$4&' @&&'')#-(&'6' $'(' !&," 8 &(' @?' ")&')$,%$'' "#' ")&' 4&,+&&,+' #8' ")&' 5##,' $'(' ")&' +$ (')1,!) *$,(&'+' +)$--' @&' ,& %@1,+&(' $--' +1!)' ,&$+#'$@-&')$,.&+' $'(' 92&'!&+' $+' %$?' @&' '!1,,&(' '' 2,#4 ('. -&,:+' $'(' ##:+6' $'('#")&,* +&' '' ")&' 5&,8#,%$'!&' #8' ")&' 31" &+')&,&@?' ,&C1 ,&('#8' ")&%' @?' ")&' $'(($"&+' $"' ")&' +$ (' -&!" #'' 8#,' ")&' +$ (' 88 !&] 5,#4 (&(' '&4&,")&-&++6' ")$"' 8' ")&' 5,#4 + #'+' #8' ") +' !"' $,&' $(#2"&(' $"' ")&' &&" '.' 8 ,+"' !$--&(' 8#,' ")$"' 51,2#+&6' ")&' +$ (' '+2&!"#,+' %$?' @&' $22# '"&(' $"' ")&' +$%&' %&' @?' ")&' $"&N 2$?&,+' #8' +1!)' 5$, +)' ")&'' 2,&+&'"6' 1'-&++' $' 5#--' +)#1-(' @&' (&%$'(&(6' $'(' 8' +1!)' 5#--' +)#1-(' @&' (&%$'(&(' '' +)$--' @&' 2,#N !&&(&(' * ")' $+')&,& '' (,&!"&(

< ' '(' @&' "81,")&,' &'$!"&(6')$"' '' &4&,?' 5$, +)' $(#2" '.' ")&' 5,#4 + #'+' #8' ") +' !"' ")&' '+2&!"#,+' +)$--6' * ") '' '&' #'")' '&9"' $8"&,' ")&' 92 ,$" #'' #8' *&-4&' $-&'($,' #'")+' 8,#%' ")&' 3$?' #8' +1!)' (#2" #'6' . 4&' #" !&' "#' ")&')1,!) *$,(&'+' #8' ")&' +$ (' 5$, +)' ")$"' ")&?' $,&' ,&$(?' "#' 2,#(1!&' ")&,' !!#1'"+' $'(' <#1!)&,+' 8#,' ")&' 2,&4 #1+' &$,6' $'(' ")&,&12#'' ")&' +$ (')1,!) *$,(&'+' +)$--' . 4&' (1&' #" !&6' '' ")&' $''&,' ,&C1 ,&(' * ")' ,&+2&!"' "#' ")&' 8 ,+"' &&" '.' "#' @&')&-(' 1'(&,' ") +' !"6' ")$"' $' &&" '.' #8' ")&' $"&N 2$?&,+' #8' ")&' +$ (' 5$, +)' * --' @&')&-(' $"' $'' #1,' $'(' 5-$!&' '' ")&' +$ (' #" !&' "#' @&' %&'"#'&(6' #'' +#%&' 3$?6' '#" @&' '.' $' * ")' '' &'' 3$?+' 8,#%' ")&' &!& 2"' #8' +1!)' #" !&6' 8#,' ")&' 51,2#+&' #8' ")&' +$ (' '+2&!"#,+' 2,#(1! '.' +1!)' !!#1'"+' $'(' <#1!)&,+6' $'(' 8#,' ")&' -&!" #'' #8' '+2&!"#,+ 8#,' ")&' 9&!1" #'' #8' ") +' !"6' $'(' 8#,' (&"&,% ' '.' ")&' %#1''' #8' ")&' #'&?' "#' @&' ,$ +&(' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' 8#,' ")&' !1,,&'' &&$,' $'(' '' &4&,?' 81"1,&' &&$,' +1!)' &&" '.' +)$--6' 8#,' ")&' 51,2#+&+' $8#,&+$ (6' @&')&-(' #'' ")&' +$%&' 3$?' '' ")&' !#,,&+2#'('.' #'")6' &9!&2"' +1!)' 3$?' +)#1-(' 8$--' #'' $' $'(' ")&'' #'' ")&' 3$?' 8#--#* '.

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B DD3 #4E' # .I3I/D' -D2/E

#ECDH3 /E' 23' EIH"' B DD3^ #4' 3 'C/ ^ GIHD' H^ H I#3E' N '#D' " /G' .' 3"DO' 3 '4 ' I3' .' '.. HD' 2#G' 3"D/E' D7DH3DG

("2 /02#' 3 ' GDH GD' YIDE '

U' a % B ' ' (2C U

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' '(' @&' "'81,")&,' &'$!"&(')$"' ")&' '+2&!"#,+' 8#,' &9&N !1" '.'") +' !"' '' $'?' 5$, +)' +)$--' %&&"' #'' ")&' 8 ,+" ' '' &4&,?' #'")6 $"' ##'6 $"' +#%&' !#'4&' &'' 5-$!&' #,' 8 !&' 2,&4 #1+-?' 21@- !-?' '#" 8 &(' $'(' $"' +1!)' #'")-?' &&" '.' "' +)$--' @&' -$*81-' Y !,' $'?' ')$@ "$'' ,$"&(' "#' ")&' &- &8' #8' ")&' 5##,' #8' $'?' +1!)' 5$, +)' "#' $22&$,' ")&,&6 $'(' 2,&8&,' $'?' $""&,' #8' #%2-$ '' *) !)')&' %$?' ") ':' 2,#2&,' "#' %$:&' !#'!&,' '.' $'?' $""&,' #,') '.' (#'&' @?' 8#,!&' #,' '' 21,+1$'!&' #8' #,' 1'(&,' 2,&"&'!&' #8' ")&' 5,#4 + #'+' #8' ") +' !"

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' '(' @&' "'81,")&,' &'$!"&(')$"' +1!)' '+2&!"#,+' +)$--' %&&"' $"' $--' #")&,' %&+' $'(' +#' #8"&'' $+' $"' $'?' 2,&4 #1+' &&" '.' +)$--' @&' (&"&,% '&(' V2#'' $'(' "' +)$--' @&' $"' $--' %&+' !#%2&"&'' 8#,' $'?' '&' '+2&!"#,6 *)&''),&&' '+2&!"#,+' #'-?' +)$--')$4&' @&&'' $22#' '"&(6 $'(' '' $--' #")&,' $+&+' 8#,' $'?' *#' '+2&!"#,+6 @?' E ," '.' 1'(&,') +' #,' ")&,' $'(+6 "#' +1%%#'6 12#'' $"' -&$+"' #,"?B& .)"' #1,+' #" !&6 ")&' '+2&!"#,+' 8#,' $'?' +2&! $-' 51,2#+&' ")&,& '' '$%&(6 $'(' 8#,' +1!)' %&' $+' +)$--' @&' ")&,& '' '$%&(' $'(' ")$"' $"' $--' &&" '.+' #8' +1!)' '+2&!"#,+' $'?' 1%@&,' '#" -&++' ")$'' '&'),(' #8' ")&' *)#-&' 1%@&,' *)&'' %#,&' ")$''),&&' '+2&!"#,+' +)$--')$4&' @&&'' $22#' '"&(6 $'(' *)&'' #'-?'),&&' '+2&!"#,+' +)$--')$4&' @&&'' $22#' '"&('")&'' '#"' -&++' ")$'' *#' '+2&!"#,+6 +)$--' !#'+"' "1"&' $' T1#,1%' 8#,' ",$'+$!" '.' 1+ '&++

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#ECDH3 /E' 3' 2CC #3' '..^ HD/E' GI/ #4' +7D2E I /D' 2#G' /D#3' 2#' '.. HD' . /3"D /2#E' 2H3 #' .'3"D /' I E #DEE

< ' '(' @&' "'81,")&,' &'$!"&(')$"' "' +)$--' @&' -$*81-' 8#,' ")&' +$ (' '+2&!"#,+' &-&!"&(' '' $'?' 5$, +)' 1'(&,' ") +' !"' 8#,' ")&' %&' @&' '.6 $'(' ")&?' $,&')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(6 "#' $22#' '"6 (1, '.' 5-&$+1,&6 +1!)' ,&$+1,&,' $'(' #")&,' 88 !&,+' $+' ")&?' +)$--' ") ':' '&!&++$,?' 8#,' &88&!" '.' ")&' 51,2#+&+' #8' ") +' !"6 $'(' ,&%#4&' $'(' (+2-$!&' ")&' +$%&6 $)(' "#') ,&' $'(' ,&'' $' +188 ! &'' 88 !&' #,' #1+&' #,' ##%' 8#,')#-(' '.' ")&,' &&" '.+' $'(' ",$'+$!" '.' ")&,' 1+ '&++6 $'(' $-+#' "#' $22#' '' +1 "$@-&' $-$, &+6 E$.&+6 $'(' --#*$'!&+' "#' $'(' 8#,' +1!)' ,&$+1,&,' $'(' #")&,' 88 !&,+6 $'(' $-+#' "#' $.,&&' 8#,' $' ,&$+#'N $@-&' &'' 8#,' +1!)' 88 !&' #,' #1+&' #,' ##%6 $'(' "#' 2$?' +1!)' $-$, &+6 E$.&+6 $'(' --#*$'!&+6 $'(' +1!)' &''6 #1"' #8' ")&' #' &+' ,&!&4&(' @?' ")&' '+2&!"#,+' 1'(&,' 1")#, "?' #8' ") +' !"] 5,#4 (&(' '&4&,")&-&++6 ")$"' '#' 5&,+#'' +)$--' $"' ")&' +$%&' %&')#-(' *#' 88 !&+' #,' "1$" #'+' 1'(&,' ")&' +$ (' '+2&!"#,+

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+$ (' '+2&!"#,+' +)$--' (,&!"6' (&- 4&,' "# ")&' +$ (' '+2&!"#,+6' #,' +1!)'
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+$" +8?' ")&' +$ (' #'&?6$'('")&')$,.&+' #8' (+",$ ' ' .' $'('+&-- ' .' ")&'
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",1&' $'(' 2&,8&!"' !!#1''' $+' $8#,&+$ (6' #,' 1'"-')&' +)$--')$4&' 2$ ('
+1!)' #' &+' $+' $88 ,&+$ (' ,' !#%2#1'(&(' * ")' ")&' +$ (' '+2&!"#,+'
8#,' +1!)' #'&?6' $'(' +)$--')$4&' 2$ (' +1!)' #%2#+"#'' '' +1!)'
$''&,' $+' ")&?' +)$--' $22#''6' X*) !)' #%2#+"#'' ")&' +$ (' 'N
+2&!"#,+' $,&')&,&@?' &%2#*&,&(' "#' %$:&' $'(' ,&!& 4&6[' $'(' 1'"-'
)&' +)$--')$4&' (&- 4&,&(' 12' +1!)' ##:+6' 5$2&,+6' $'(' E, " ' .+6' #,'
. 4&'' $" +8$!" #'' '' ,8 +2&!"' ")&,&#86' "#' ")&' +$ (' '+2&!"#,+' #,' "#'
+1!)' #")&,' 5&,+#'' #,' 5&,+#'+' $+' $8#,&+$ (' @1"' '#' +1!)' 88&'(&,'
+)$--' @&' :&2"' #,' (&"$ '&(' '' +1!)' #%%#'' H$#-' #,' #1+&' #8' #,N
,&!" #'' 8#,' E$''#8' +188 ! &'' 3 +",&++' @?' 4 ,"1&' #8' ") +' !"' 8#,' $'?'
-#'.&,' 2$!&' #,' %&' ")$''),&&' $-&'($,' #'")+B

(0 0 3 0 D#3'
.' ' ..D#GD/'
3' 3 ' G E^
H"2/4D' " E'
I /D3 DE

< ' '(' @&' "' 81,")&,' &'$!"&(')$"' '#' 5 B#+&!1" #'' #,' #%N
% "%&''6' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"6' #8' $'?' ,&$+1,&,' #,' #")&,'
88 !&,' #,' 5&,+#'' "#' @&' $22#' '"&(' 1'(&,' ")&' 5#*&,+' #8' ") +' !"6'
+)$--' $!C1 "' #,' (+!)$,.&' $'?' 1,&"?' #,' &!1, "?' ")$"' +)$--' #,' %$?'
)$4&' @&&'' "$:&'' @?' #,' . 4&'' "#' ")&' +$ (' '+2&!"#,+' 8#,' ")&' (1&' $'('
8$ ")81-' 9&!1" #'' #8') +' #,' ")&,' 88 !&6' #,' ")&' 5$?%&'' #8' ")&'
#' &+' ,&!& 4&(' #,' "#' @&' ,&!& 4&(' @?') %' #,' ")&%' ,&+2&!" 4&-?

' .. HD/E'
32] #4' 2#6'
DD' /' =D^
Z2/G' OD^
E GDE' 3"D'
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2CC #3DG' 3 '
. /.D 3' TU<

< ' '(' @&' "' 81,")&,' &'$!"&(')$"' 8' $'?' 5&,+#'' *)#' +)$--'
@&' &%2-#?&(' $+' ,&$+1,&,6' #,' $'?' #")&,' 88 !&,' #,' &,4$''' *)#' +)$--'
@&' '' $'?* +&' &%2-#?&(' @?' ")&' +$ (' '+2&!"#,+' 8#,' 21"" '.' ") +' !"'
#,' $'?' #8' ")&' 5#*&,+' ")&,&#8' '"#' &9&!1" #''6' +)$--' &9$!"6' "$:&6' #,'
$!!&2"' $'?' &&' #,' &*$,(' *)$"+#&4&,' #")&,' ")$'' +1!)' $-$, &+6'
--#*$'!&+6' $'(' &*$,(+' $+' $,&' $22#' '"&(' @?' ") +' !"6' #,' +)$--' @&'
$22#' '"&(6' $--#*&(6' $'(' $22,#4&(' #8' @?' ")&' +$ (' '+2&!"#,+6' 8#,' #,'
#'' $!!#1''' #8' $'?' ")' '.' (#'&' #,' "#' @&' (#'&' @?' 4 ,"1&' #8' ") +' !"6' #,'
#'' $'? !!#1''' *)$"+#&4&,' ,&-$"' 4&' "#' 21"" '.' ") +' !"' '"#' &9&!1N
"#'6' #,' +)$--' '' $'?* +&' @&' !#'!&,'&(' #,' '"&,&+"&(' '' $'?' $,.$''
#,' #' ",$!"' %$(&' #,' "#' @&' %$(&' @?' ")&' +$ (' '+2&!"#,+' $'(' '#'
5&,+#'6' (1,' '.' ")&' %&')&')#-(+' ")&' 88 !&' #8' '+2&!"#,6' +)$--' $!N
!&2"' #,')#-(' $'?' 88 !&' #,' 5-$!&' #8' ,1+"' !,&$"&(' @?' 4 ,"1&' #8' ") +' !"'

L ' $ B ' ' (2C U '

!" * ") '' ")& +$ (' 5$, +)6 #,' +)$-- @& !#'!&,'&(' (,&!"-? #,' '(N
,&!"-? '' $'? #'",$!" * ")' ")& +$ (' 5$, +)' ' &4&,? +1!)' 5&,+#'' +#
#88&'('.' +)$-- @& '!$2$@-& #8 &4&,' +&,4 '.' #,' @& '.' &%2-#?&(' 1'(&,'
") + !"6 $'(' +)$-- #4&,' $'(' $@#4& 8#,8& '' ")& 1% #8 8"? 5#1'(+
"# $'? 5&,+#'' #,' 5&,+#'+ *)# +)$-- +1& 8#,' ")& +$%&

' '(' @& '' 81,")&,' &'$!"&(')$'' ")& +$ (' '+2&!"#,+' %$? #ECDH3 /E
+1& $'(' @& +1&(' '' ")& $%& #8 $'? '& #8 ")& '+2&!"#,+ 8#,' ")&
%& @& '.' $'(' $-- !"#'+ #,' 1 "+ ")$'' %$? @& '&!&++$,? #,' &9B $%&#8$'47
2&(&'' "# @& @,#1.)'' 8#,' ")& &!#4&,? #8 $'? 5&'$-"? #,' 1% #8 '#D'#8 3"DO '
#'&? (1& #,' 2$?$@-& @? 4 ,"1& #8 ") + !"6 #,' 8#,' #,' (' ,&+2&!" #8
$'? #")&,' $""&,' #,') '.' ,&-$" '.' "# ") + !"6' %$? @& @,#1.)'' ''
")& $%& #8 $'? '& #8 ")& +$ (' '+2&!"#,+' $'(' ")$'' '# !"#''
#,' 1 '' *) !)' %$? @& @,#1.)"6 !#%%&'!&(6 #,' 2,#+&!1"&(' @? ' /
$.$ '+'' ")& +$ (' '+2&!"#,+6 #,' $'? #8 ")&%6 @? 4 ,"1& #,'#'' $!!#1''
#8 ") + !"6 +)$-- $@$"& #,' @& (+!#'" '1&(' @? ")& 3&$")6 &+ .'$N
"#'6 #,' &%#4$-' #8 +1!)' '+2&!"#,6 @1" +1!)' '+2&!"#,' +)$-- @&
(&&%&(' 5-$ '" 88 #,' 3&8&'($'' '' $'? +1!)' !"#'' #,' 1 '' X$+' ")&
$+& %$? @&[] 5,#4 (&('$-+#6 ")$'' '' $-- $+&+ '' *) !)' ")& '+2&!"#,'
$+ $8#,&+$ ('+)$--6 '' 21,+1$'!& #8 ") + !"6 @& ")& 5-$ '" 88 #,' 3&8&'N
($'' #'' ")& &!#,(' '' $'? !"#'' #,' !"#'+6 1 '' #,' 1 "+6 '' *) !)'
'' &88&!'' ")& +$ (' '+2&!"#,+ +)$-- @& +1 '.' #,' +1&(' '' ")& $%& #8
+1!)' '& '+2&!"#,' $+ $8#,&+$ (6)& X$-")#1.)' $22&$, '.' $+ ")& 5-$ 'N
" 88 #,' 3&8&'($'' #'' ")& &!#,([%$? $'('+)$-- '&4&,")&-&++ X 8 '#''
#")&,* +& '"&,&+"&(' #,' #@>&!" #'$@-&[@& $.##(' &9$% '$@-& $'(' !#%N
2&"&'' E "'&++ '' &4&,? !"#'' #,' 1 '' & ")&,' 8#,' #,' $.$ '+'' ")& +$ ('
'+2&!"#,+ ' $'(' $-- ")& 88 ($4 "+ #8 3&@'' #,' &,4 !& *) !)' %$? @&
'&!&++$,? #,' &92&(&'' "# @& %$(& 2,&2$,$"#,? "# #,' '' ")& 5,#+&!1 '
"#'' #,' 3&8&'!& #8 $'? $'(' &4&,? +1!)' !"#'6 1 "6 #,' 5,#!&&(N
'.' +)$-- $'(' %$? @& -$*81--? %$(& @? +1!)' '& '+2&!"#,6 '#"* ")N
+"$'('.')& +)$-- @& '#% '$- 5-$ '" 88 #,' 3&8&'($'' #'' ")& &!#,(' $+
$8#,&+$ (' 5,#4 (&('$-+#6 ")$'' &4&,? #,' $'? +1!)' '+2&!"#,' '' *)#+&
$%& $'? !"#''#,' 1 '' +)$-- @& !#%%&'!&(6 2,#+&!1"&(6 #,' (&8&'(&(' '
'' 21,+1$'!& #8 ") + !'' +)$-- $-*$?+ @& ,& %@1,+&(' $'(' 2$ (6 #1''
#8 ")& #' &+ "# $, +& @? 4 ,"1& #8 ") + !"6 $-- +1!)' #+"+6)$,.&+6
$'(' 92&'!&+ $+)& +)$-- @& 21'' "# #,' @&!#%& !)$,.&$@-& * ")' @?
,&$+#'' #8) + @& '.' %$(& 5-$ '" 88 #,' 3&8&'($'' ")&,& '' ' $'(' '' !$+&
#8) + &%#4$- 8,#% 88 !&6 #,' !&$+ '.' "# $!" $+ +1!)' '+2&!"#,6 $--
+1!)' #+"+6)$,.&+6 $'(' 92&'!&+ +)$-- @& 2$ (' @? ")& '+2&!"#,'
8#,' ")& %& @& '.' $'(' '# '+2&!"#,' +)$-- @& 2&,+#'$--? $'+*&,$@-&
#,' - $@-& 8#,' ")& 5$?%&'' #8 ")& +$%& #,' $'? 5$,"#8 ")&%6 1'-&++
+1!)' !"#'' #,' 1 '' +)$-- $, +& '' !#'+&C1&'!& #8) + #*'' * -81-
&.-&!'' #,' 3&8$1-"6 #,')$4& @&&'' @,#1.)'' #,' !#%%&'!&(' #,' @&
(&8&'(&(' * ")#1'' ")& ,(&,' #,' 3 ,&!"#'' #8 ")& +$ (' '+2&!"#,+

' '(' @& '' 81,")&,' &'$!"&(')$'' $-- !"+6 ,(&,+6 $'(' +/ HDDG #4E
5,#!&&('.+ #8 ")& +$ (' '+2&!"#,+ $'' $'(' &&" '.+ +)$-- @& 23 BDD3 #4E
&'"&,&(' '' $ ##:'"# @& :&2'' @? ")&% 8#,' ")$'' 51,2#+&6 $'(' +)$-- @& .' #ECDH3 /E
+ .'&('@? *##8 ")& '+2&!"#,+ *)# *&,& ")&'' 2,&+&''' $'(' $-- +1!)' 3 ' OD D#3D/DG
!"+6 ,(&,+6 $'(' 5,#!&&('.+ +)$-- ")&'' @& (&&%&(' $'(' "$:&'' "# @& #]E
#, . '$- !"+6 ,(&,+6 $'(' 5,#!&&('.+' $'(' +1!)' ##:+ +)$-- $'(' Z" H" E"27
%$? @& 2,#(1!&(' $'(' ,&$(' $+ 4 (&'!& #8 $-- +1!)' !"+6 ,(&,+6 $'(' OD4 G F ^
5,#!&&('.+ 12#'' $'? 22&$- #,' , $- #,' '8#,%$" #'6 #,' $'? 5,#N GD#HD
!&&('.+6

B (2C U

!&&('.+6 4-#, , % '$-6 $'($'? #1," #, #1,"+ #8 $* #, C1 "? *)$"+#&4&,

HH#I I3E 3 OD]DC3

'(@& " 81,")&, &'$!"&( )$" ")& +$ ('+2&!"#,+ +)$-- $'(")&? $,&)&,&@? ,&C1 ,&(8,#% %& "# %& "# #,(&, $'((,&!" $ ##: #, ##:+ "# @& 2,#4 (&($'(:&2"6 *) !) ##: #, ##:+ +)$-- @& &'"&,&(",1& $'(,&.1-$, !!#1'"+ #8 $-- 1%+ #8 #'&? ,&!& 4&(6 2$ (6 $'(&92&'(&(8#, #, #" $!!#1'" #8 ")& 51,2#+&+ #8 ") + !"6 $'(#8 ")& +&4&,$- ," !-&+6 $""&,+6 $'( ) '.+ 8#, *) !) +1!) 1%+ #8 #'&? +)$--)$4& @&&" (+@1,+&($'(2$ ($'(+1!) ##: #, ##:+ +)$-- $" $-- ,&$+#'$@-& %&+ @& #2&" "# ")& '+2&!N "#" #8 ")& +$ (, +2&!"#,+ $'(#8 &4&,? ')$@ "$'" ,$"&("# ")& &- &8 #8 ")& 5##, #8 ")& 5$, +) $(#2" '. ")& 5,#4 + #'+ #8 ") + !"6 * ")#1" && #, &*$,($'(")& +$ ('+2&!"#,+ $'(#")&, 5&,+#'+ $8#,&+$ (6 #, $'? #8 ")&%6 +)$-- #, %$? "$:& #2 &+ #8 #, 9",$!"+ 8,#% ")& +$ (##: #, ##:+6 #, $'? 5$," ")&,&#86 * ")#1" 2$? '. 8#, ")& +$%& $'(!$+& ")& +$ ('+2&!"#,+ +)$-- ,&81+& "# 2&,N % " #, +)$-- '#" 2&,% " ")& +$ (5&,+#'+ $8#,&+$ ("# '+2&!" ")& +$%&6 #, "$:& #2 &+ #, 9",$!"+ $+ $8#,&+$ (6 +1!) '+2&!"#, +)$-- 8#,8& " $'(2$? $'? 1% #8 #'&? '#" &9!&&('. 4& 5#1'(+ 8#, &$!) 3&8$1-"6 "# @& -&4 &($'($22- &(% $''&,)&,& 'B$8"&, 2,#4 (&(

#ECDH3 /E 3 EE I D2# ' /GD/ 3 ' FD/EDD/E . +26 0 D#3 . B #D6 . 3"D +I /C EDE . 3" E H3

'(@& "81,")&, &'$!"&(6)$" $+ +##" $+ ")& '+2&!"#,+)$4& @&&" &-&!"&($+ $8#,&+$ (6 " +)$-- @& -$*81- 8#, ")&%6 #, $'? *# #, %#,& #8 ")&%6 8,#% %& "# %& "# ++1& $" ,(&, 1'(&, ")& , $'(+ "# ")& 4&,+&&,+ #8 ")& 5##, #8 $'? 5$, +) "# *) !) ")& 5,#4 + #'+ #8 ") + !" +)$-- @& &9"&'(&(6 @? *) !) ,(&, ")&? +)$-- ,&C1 ,& ")& +$ (4&,+&&,+ "# -&4? ")& %#1'" %&'" #'&(")& +$ (,(&,

+ ZD/ 3 H 77DH3 =23DE

'(@& " 81,")&, &'$!"&(6)$" ")& 4&,+&&,+ $8#,&+$ (+)$--6 8#, ")& 51,2#+& #8 !#--&!" '.6 $+ '.6 $'(-&4? '. ")& $"& '&!&++$,? 8#, ")& 51,2#+&+ #8 ") + !"6 2,#!&&(")& +$%& $''&,6 $'( )$4& ")& +$%& 5#*&,+6 &%&(&+6 $'(5, 4 -&.&+6 $+ 8#, -&4? '. #'&? 8#, ")& &- &8 #8 ")& 5##, ")& +$ (5$, +)] 5,#4 (&($-*$?+6 ")$" *'&,+ $'(!!12 &,+ #8 #1+&+6 1-('.+6 $'(5,#N 2&,"? X#")&, ")$ $'([,$"&$@-& "# ")& &- &8 #8 ")& 5##, $'? +1!) 5$, +) +)$-- @& ,$"&($" $'(2$? $ $"& ")& 5#1'( ),&& %&+ .,&$"&, ")$" ")$" $" *) !) ")& *'&,+ $'(!!12 &,+ #8 $'(+)$-- @& ,$"&($" $'(2$? 8#, ")& 51,2#+&+ #8 ") + !"] 5,#4 (&($-+#6 ")$" ")& "#"$- %#1'" #8 ")& 1% "# @& !#--&!"&(6 ,$ +&(6 $'(-&4 &(8#, ")& 51,2#+&+ #8 ") + !" + "# ")$ $'(&$, +)$-- '#" &9!&&(+1!) 1% $+ +)$--)$4& @&&" $.,&(#" @? ")& ')$@ "$'"+ #8 ")& +$ (5$, +) $+ $8#,&+$ (6 $'(")$" ")& +$ (1% +)$-- @& $++&++&(12#" ")& 81-- $'(8$, $''1$- <$-1& "# *) !) $'(+6 #1+&+6 1-('.+6 $'(#")&, 5,#2&,"? * ") ")& +$ (5$, +) +)$-- @& ,$"&(#, +)$-- @& ,$"&$@-& $!!#,('. "# ")& -$+" <-1" #" %$(& $'($!"&(12#" 8#, ")& $"& 8#, ")& &- &8 #8 ")& 5##, * ") ")& +$ (5$, +)

7-8+& "# @& /23DG EDC2 / I 3D76

< 5,#4 (&($-*$?+6 $'(@& "81,")&, &'$!"&( )$" " +)$-- @& -$*81- 8#, ")& 4&,+&&,+ #8 ")& 5##, #8 $'? +1!) 5$, +)6 $'(")&?

")&? $,&)&,&@? ,&C1 ,&(6 *)&'&4&,6 $!!#,('. "# ")& $"& %$(&
8#, ")& &- &8 #8 ")& 5##,6 #'& $'(")& +$%& 5&,+#' +)$-- @& ,$"&(
'#'& 1% ' ,&+2&!" #8 $'(6 $'($-+# #8 #1+&+6 1-('.+6 $'(
#")&, 5,#2&,"?6 "# !$1+& +1!) $'(6 $'($-+# +1!) #1+&+6 1-(N
'.+6 $'(#")&, 5,#2&,"?6 "# @& +&2$,$"&-? $++&++&(6 $'(")& 1,$6
)&,&@? $1")#, L&("# @& -&4 &(+)$-- @& $++&++&($!!#,('.-?] 5,#N
4 (&($-*$?+6 ")$" &4&,? #1,"B?$,(6 $,(6 #, H$,(&' X+1!) H$,(&'
'#" @& '. $ $,:&" H$,(&' #, 1,+&,? H,#1'([+)$-- @& '!-1(&(
' $'(%$:& 5$," #8 ")& ++&++%&'" "# @& %$(& #' ")& #1+&6
1-('.+6 #, #")&, 5,#2&,"? "# *) !) ")&? %$? @& ,&+2&!" 4&-?
$""$!)&(] 5,#4 (&($-+#6 ")$" +1!) $'(6 #1+&+6 1-('.+6 $'(
#")&, 5,#2&,"? +)$-- '#" '")& *)#-& @& $++&++&($" $) .)&, %#1'"
")$' ")&? *&,& ' ")& -$+" $"& %$(& 8#, ")& &- &8 #8 ")& 5##,
*") ' ")& +$ (5$, +)

< '(@& "81,")&, &'$!"&( )$" 8 ")& 4&,+&&,+ #8 ")& + ZD/ .
5##, #8 $'? 5$, +) $(#2" '. ")& 5,#4 + #'+ #8 ") + ! +)$-- .# +1!!&&('.
#1" #8 88 !& @&8#,& "- &? +)$--)$4& !#--&!"&(#, -&4 &(")& %#1'" 'FD/EDD/E 3
%&'" #'&(' ")& ,(&, ++1&(1'(&, ")& $'(+ #8 ")& +$ ('N H 77DH3 =23D
+2&!"#,+ ' 21,+1$'!& #8 ") + !"6 ")&? +)$-- (&- 4&, "# ")& +1!N
!&&('. 4&,+&&,+6 *") ' &4&' 3$?+ 8,#% ")& %& ")&? .# #1" #8
88 !&6 $ 81-- $'(2$," !1-$, !!#1'" ' E," '. #8 ")& $%&+ #8
")& 5$," &+ 8,#% *)#% $'? #'&? %$? @& (1& #" $!!#1'" #8 ")&
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++1&("# ")&% @? ")& +$ ('+2&!"#,+ $'(' +1!) $+& ")& +1!N
!&&('. 4&,+&&,+ +)$--)$4& ")& - :& 5#*&,+ $'(&%&(&+ 1'(&,
") + !" 8#, ")& !#--&!" '. $'(&!#4&,? ")&,&#86 $'(+)$-- @&
-$@-& "# ")& +$%& 5&'$-" &+ $'(#,8& "1,&+ ' !$+& #8 ")& #'N
2$?%&'" "# ")& +$ ('+2&!"#,+6 $+ ")&, 5,&(&!&++#,+)$(#, *&,&
-$@-& "#

< '(@& " 81,")&, &'$!"&( )$" ")& 4&,+&&,+ #8 ")& 'FD/EDD/E 3
5##, #8 &4&,? 5$, +) $(#2" '. ")& 5,#4 + #'+ #8 ") + !"6 "# *)#% C26 0 I#3
$'? +1!) ,(&, $+ $8#,&+$ (+)$-- @& ++1&(6 +)$-- 2$? #4&, ")& 3 /D2EI/D/
%#1'" %&'" #'&(' +1!) ,(&, "# ")& ,&$+1,&, "# @& $22# '"&(
' ")& +$ (5$, +) 1'(&, ") + !" * ") '),&& $-&'($, #'")+
8,#% ")& 3&- 4&,? #8 +1!) ,(&, "# '& #8 ")& 4&,+&&,+6 $'(+)$--
:&&2 ")& !!#1'" #8 ")& +$ ($"& -&4 &(8#, ")& 51,2#+&+ #8 ") +
!" +&2$,$"& $'((+" '!" 8,#% ")& !!#1'" #8 ")& $"&+ -&4 &('
")& +$%& 5$, +) 8#, ")& &- &8 #8 ")& 5##, $'($" ")& %& #8
%$: '. $'? 5$?%&'" "# ")& +$ (,&$+1,&, ")& +$ (4&,+&&,+ +)$--
(&- 4&, "#) % $ #"& ' E," '. + '&(@? ")&%6 +2&! 8? '. ")&
%#1'" # 2$ (6 *) !) #"& +)$-- @& :&2" @? ")& ,&$+1,&, $+ $
<#1!)&, 8#,) + &!& 2" #8 ")$" 2$," !1-$, %#1'" $'(")& &!& 2" =DHD C3 .
#8 ")& +$ (,&$+1,&,6 +2&! 8? '. ")& %#1'" 2$ ("#) % @? ")& /D2EI/D/ 3
4&,+&&,+6 +)$-- @& $ +188 ! &'" 3 +!)$,.& "# ")& 4&,+&&,+ 8#, +1!) OD 2 * E^
%#1'"6 $'(+)$-- @& $--#*&($+ +1!) ' 2$++ '. ")& , !!#1'"+ * ") H"2/4D 3
")& ,&+2&!" 4& 5$, +)&+ 'FD/EDD/E

< '(@& "&'$!"&( )$" *)&,& $'? 5&,+#'+ #")&, ")$' @"D/D 3"D/
")& 4&,+&&,+ #8 ")& 5##, +)$-- @? 4 ,"1& #8 $'? 88 !& #, 22# '"B +D/E #E 2/D
%&'" @& $1")#, L&($'(,&C1 ,&("# %$:& $'(!#--&!" #, !$1+& "# !#--&!"5##,+
@& !#--&!"&(")& $"& 8#, ")& &- &8 #8 ")& 5##, ' $'? 5$, +) "# =23DE EIH"
*) !)

Q L' ' ;' B' ' (2C U

5&,+#'+'3 'OD' GDD O DG ' FD/ ' +&&,+

"4) !)' $-- #,' $'?' #8' ")&' 5,#4 + #'+' #8' ") +' !" +)$-- @&' &9"&'(&(6' 5&,+#'+6' @?' *)$"+#&4&,' "-&' ")&?' %$?' @&' !$--&(6' +)$-- @& (&&%&(' "#' @&' 4&,+&&,+' #8' ")&' 5##,' * ") '' ")&' &$' '.' #8' ") +' !"6' $'(' "#' @&' '!-1(&(' 1'(&,' $'(' (&'#"&(' @?' ")&' E#,(+' \' 4&,+&&,+' #8' ")&' 5##,6^' 8#,' $--' ")&' 51,2#+&+' #8' ") +' !"6' $+' 81--?' $+' 8' ")&?' *&,&' !#%%#'-?' !$--&(' #,' :'#*'' @?' ")&' "-&' #8' 4&,+&&,+' #8' ")&' 5##,

4&,+&&,+' ",$ '&(' 17#" . /) #C26L' # D#3'

< ' '(' @&' "&'$!"&(')$" '' !$+&' ")&' %#1'" ' +1!)' ,(&,' $+' $8#,&+$ (' "#' @&' 2$ (' @?' ")&' 4&,+&&,+' '' $'?' 5$, +) *) !)' $-- ' $'?' #8' ")&' 5,#4 + #'+' #8' ") +' !" +)$-- @&' &9"&'(&(+)$-- '#" @&' 2$ (' "#' ")&' +$ (' ,&$+1,&,' * ") '' ")&' %&' +2&! 8 &(8#,' ")$" 51,2#+&' '' ")&' +$ (' ,(&,6' $'?' R1+" !&' #8' ")&' 5&$!&6' 12#'' #%2-$ '" ")&,&#8' %$(&' "#') %' @?' ")&' +$ (' ,&$+1,&,' #,' @?' $'?' '&' #8' ")&' '+2&!"#,+6' %$?' $'(')&' +')&,&@?' $1")#, L&(' $'(' ,&C1 ,&(' "# ++1&' $' 1%%#'+' 1'(&,') +' $'(' $'(' &$- 8#,' ")&' +$ (' 4&,+&&,+' +# ,&81+ '.' #,' '&.-&!" '.' "#' 2$?' +1!)' #'&?' $+' $8#,&+$ (' "#' $22&$,' @&8#,&' *#' R1+" !&+' #8' ")&' 5&$!&' $'(' 12#'' ")&' +$ (' 4&,+&&,+' $22&$, '.6' #,')$4 '.' @&&'' +# +1%%#'&(' $'(' '#" $22&$, '.6' * ")#1" +#%&' +188 ! &'" $'(' ,&$+#'$@-&' 9!1+&6' #,' '#" @& '.' 8#1'(6' +)$-- @&' -$* 81- 8#,' ")&' +$ (' R1+" !&+' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' '' !$+&' ")# +$ (' #'&?' +' '#" 2$ (6' "#' ++1&' ")& ,' E$,,$'" 8#,' -&4? '.' ")&' %#1'"6' #,' +# %1!)' ")&,&#8' $+' %$?' @&' '' $,,&$,6' @?' 3 +",&++' $'(' $-&' #8' ")&' H##(+' #8' $--' #,' $'?' #8' ")&' +$ (' 4&,+&&,+' $'(' '' !$+&' ")&' H##(+' #8' $-- ")&' 4&,+&&,+' +)$-- '#" @&' +188 ! &'" "#' 2$?' ")&' +$%&6' ")&' ,,&$,+' ")&,&#8' +)$-- @&' $((&(' "#' ")&' %#1'" #8' ")&' '&9" &4?' *) !)' +)$-- @&' (,&!"&(' "#' @&' %$(&' '' +1!)' 5$, +)' 8#,' ")&' 51,2#+&+' #8' ") +' !"6' $'(' +)$-- @&' !#--&!"&(' @?' ")&' - :&' &")#(

@23H" O D#!' 2#8'"&(77'(= C/ F GDG' Z 3" /O ! (7 3" #4!' H'

A' '(' @&' " 81,")&,' &'$!"&(')$" ")&' +$ (' '+2&!"#,+' 8,#%' %&' "#' %&' $22#' '" $'(' &%2-#?' +1!)' 1%@&,' #8' $@-&7 @#(&(' E$"!)B)#1+&' D&&2&,+6' &,>&$'"+' #8' ")&' E$"!)6' E$"!)%&'6 5$",#-+6' ",&&":&&2&,+6' $'(' #")&,' 5&,+#'+' $+' ")&?' +)$-- ") ':' +188 ! &'" 8#,' ")&' 2,#2&,' 5,#"&!" #'' #8' ")&' ')$@ "$'"+6' #1+&+6' $'(' 5,#2&,"?6' ",&&"+' $'(' #")&,' 5-$!&+' * ") '' ")&' % "+' #8' ") +' !"6' @?' 3$?' #,' @?' .)"6' #,' @?' 3$?' $'(' @?' .)"6' $'(' 2,#4 (&' 8#,' ")&' R+&' #8' $-- +1!)' E$"!)%&'6' E$"!)B)#1+&' D&&2&,+6' &,>&$'"+' #8' ")&' E$"!)6' 5$",#-6' $'(' 5&,+#'+' $+' $8#,&+$ (' +1!)' -#") '.6' ,%+6' %%1' "#'6' $'(' E&$2#'+6' $'(' +)$-- $++ .' "#' ")&%' +1!)' &$"+' $'(' #1'(+' $'(' 31" &+6' $'(' $22#' '" +1!)' #1,+' 8#,' ")&%' "#' @&' #' 31"?6' $'(' $-+# +1!)' E$.&+6' &*$,(+6' $'(' H,$"1 " &+6' #,' &%1'&,$" #'+' 8#,' ")&' &,4 !&+6' $'(' $-+# %$:&' +1!)' 1-&+6' ,(&,+6' $'(' &.1-$" #'+' ,&-$" 4&' "#' +1!)' E$"!)B)#1+&' D&&2&,+6' &>&$'"+' #8' ")&' E$"!)6' E$"!)%&'6' 5$",#-6' ",&&":&&2&,+6' $'(' #")&,' 5&,+#'+6' $'(' ")&' ' 31" &+6' $+' "#' ")&' +$ (' '+2&!"#,+' +)$-- +&&%' %&&"6' $'(' $-+# +)$-- $'(' %$?' #88&' $'(' .4&6' $+' *&-- "#' ")&' +$ (' 5&,+#'+' $+' "#' $'?' #")&,' '#" +2&! $--?' &%2-#?&(' @?' ")&%6' +1!)' H,$"1 " &+' $'(' &*$,(+' 8#,' $22,&)&'(' '.' &-#'+' $'(' #")&,+' 88&'(&,+' * ") '' ")&' % "+' #8' ") +' !"6' $+' "#' ")&%' +)$-- +&&%' 2,#2&,' $'(' +)$-- $'(' %$?' (&8,$?' ")&' 92&' !&+' #8' 2,#N +&!1" '.' $'?' +1!)' &-#'+' $'(' 88&'(&,+6' 8#,' ")&' 5,#"&!" #'' #8' ")&' ')$@ "$'"+' #8' $'?' 5$, +)' $(#2" '.' ")&' 5,#4 + #'+' #8' ") +' !"6' #,' '' (&&' ('.' $'?' #8' ")&' +$ (' 5&,+#'+' #' #")&,' 88 !&,+' #8' ")&' +$ (' '+2&!"#,+' '' ")&' 9&!1" #'' #8' ")&' ' 31"?6' $+' ")&?' +)$-- ") ': 2,#2&,

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2,#2&, ʿ $'(ʿ")&ʿ +$ (ʿ E$.&+6ʿ &*$,(+6ʿ H,$"1 "&+6ʿ $'(ʿ ")&ʿ #+"+ʿ #8ʿ +1!)ʿ 5,#+&!1" #'+ʿ #,ʿ 3&8&'!&+6ʿ $'(ʿ $--ʿ #")&,ʿ 92&'!&+ʿ ")$"ʿ %$?ʿ @&ʿ '!1,,&(ʿ @?ʿ ")&ʿ +$ (ʿ '+2&!"#,+ʿ 8#,ʿ ")&ʿ 5,#"&!" #'ʿ $'(ʿ H1$,(ʿ #8ʿ ")&ʿ ')$@ "$'"+6ʿ +)$--ʿ $'(ʿ %$?ʿ @&ʿ 2$ (ʿ @?ʿ ")&ʿ +$ (ʿ '+2&!"#,+ʿ #1"ʿ #8ʿ ")&ʿ #' &+ʿ ,&!& 4&(ʿ 'ʿ 21,+1$'!&ʿ #8ʿ") +ʿ !"

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ $--ʿ +1!)ʿ -#") '.6ʿ ,%+6ʿ %%1' "#'6ʿ $'(ʿ E&$2#'+6ʿ +#ʿ 2,#4 (&(ʿ 8#,ʿ")&ʿ V+&ʿ #8ʿ +1!)ʿ E$"!)Bʿ %&'ʿ E$"!)B)#1+&ʿ D&&2&,+6ʿ &,>&$'"+ʿ #8ʿ ")&ʿ E$"!)6ʿ 5$",#-6ʿ $'(ʿ 5&,+#'+ʿ $+ʿ $8#,&+$ (6ʿ +)$--ʿ ,&%$ 'ʿ $'(ʿ !#'" '1&ʿ ")&ʿ 5,#2&,"?ʿ #8ʿ ")&ʿ '+2&!"#,+ʿ 8#,ʿ ")&ʿ %&ʿ @& '.6ʿ $'(ʿ 'ʿ !$+&ʿ #8ʿ ")&ʿ &+ .'$" #'6ʿ &N %#4$-6ʿ #,ʿ 3&$")ʿ #8ʿ $'?ʿ +1!)ʿ E$"!)%&'6ʿ E$"!)B)#1+&ʿ D&&2&,6 &,>&$'"ʿ #8ʿ")&ʿ E$"!)6ʿ 5$",#-6ʿ #,ʿ5&,+#'ʿ $+ʿ $8#,&+$ (6ʿ +)$--ʿ@&ʿ,&"1,'&(ʿ "#ʿ ")&ʿ +$ (ʿ '+2&!"#,+ʿ ʿ $'(ʿ 'ʿ !$+&ʿ #8ʿ &.-&!"ʿ #,ʿ &81+$-ʿ +#ʿ "#ʿ (#ʿ ")&ʿ +$ (ʿ E$"!)%&'6ʿ E$"!)B)#1+&ʿ D&&2&,6ʿ &,>&$'"ʿ #8ʿ ")&ʿ E$"!)6 5$",#-6ʿ #,ʿ 5&,+#'ʿ $+ʿ $8#,&+$ (6ʿ #,ʿ 'ʿ !$+&ʿ #8ʿ) +ʿ 3&$")ʿ ")&ʿ 5$,"?ʿ 'ʿ 5#++&++ #'ʿ ")&,&#8ʿ +)$--ʿ @&ʿ +1@>&!"ʿ $'(ʿ -$@-&ʿ "#ʿ $ʿ 5&'$-"?ʿ '#"ʿ &9N !&&('.ʿ")&ʿ 1%ʿ #8ʿ *&'"?ʿ 5#1'(+6ʿ "#ʿ @&ʿ ,&!#4&,&(ʿ 8#,ʿ ")&ʿ V+&ʿ #8ʿ ")&ʿ +$ (ʿ '+2&!"#,+ @23H" OD#!ʿ ʿ3ʿGD7 FD/ʿ #ʿ=DO F27ʿ H!ʿ a +D#2736!ʿ

ʿ '(ʿ @&ʿ "ʿ 81,")&,ʿ &'$!"&(ʿ)$"ʿ ")&ʿ E$"!)%&'6ʿ &,>&$'"+ʿ #8ʿ ")&ʿ E$"!)6ʿ 5$",#-+6ʿ $'(ʿ #")&,ʿ5&,+#'+ʿ "#ʿ @&ʿ $22#ʿ '"&(ʿ @?ʿ 4 ,"1&ʿ #8ʿ ") +ʿ !"ʿ +)$--6ʿ (1, '.ʿ")&ʿ %&ʿ ")&?ʿ +)$--ʿ @&ʿ #'ʿ 31"?6ʿ 1+&ʿ ")&,ʿ 1"%#+"ʿ '(&$4#1,+ʿ "#ʿ 2,&4&'"ʿ $'?ʿ +!) &8ʿ @?ʿ ,&6ʿ $'(ʿ $-+#ʿ "#ʿ 2,&4&'"ʿ $--ʿ #@@&, &+6ʿ 1,.-$, &+6ʿ $'(ʿ #")&,ʿ &-#' &+ʿ $'(ʿ +(&N %&$'#,+6ʿ $'(ʿ #")&,ʿ 1",$.&+6ʿ 3 +#,(&,+6ʿ $'(ʿ ,&$!)&+ʿ #8ʿ ")&ʿ 5&$!&ʿ * ") 'ʿ ")&ʿ % "+ʿ #8ʿ")&ʿ 5$, +)ʿ $(#2" '.ʿ ")&ʿ 5,#4 + #'+ʿ #8ʿ ") +ʿ !" $'(ʿ "#ʿ $22,&)&'(ʿ $'(ʿ +&!1,&ʿ $--ʿ &-#'+6ʿ #.1&+6ʿ <$.$@#'(+6ʿ $'(ʿ (+#,(&,-?ʿ 5&,+#'+ʿ *)#ʿ +)$--ʿ (+"1,@ʿ")&ʿ 21@- !ʿ 5&$!&6ʿ #,ʿ $'?ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ *$'(&, '.6ʿ '.6ʿ +&!,&"ʿ '.6ʿ #,ʿ % +@&)$4 '.ʿ) %+&-86ʿ)&,+&-86ʿ #,ʿ ")&%+&-4&+6ʿ #,ʿ *)#%ʿ ")&?ʿ +)$--ʿ)$4&ʿ ,&$+#'$@-&ʿ $1+&ʿ "#ʿ +1+2&!"ʿ #8ʿ $'?ʿ &4 -ʿ 3&+ .'+6ʿ $'(ʿ "#ʿ +&!1,&ʿ $'(ʿ :&&2ʿ 'ʿ +$8&ʿ 1+"#(?ʿ &4&,?ʿ +1!)ʿ 5&,+#'6ʿ 'ʿ #,(&,ʿ ")$"ʿ)&ʿ #,ʿ +)&ʿ %$?ʿ @&ʿ !#'4&?&(ʿ $+ʿ +##'ʿ $+ʿ !#'N 4&' &'"-?ʿ %$?ʿ @&ʿ @&8#,&ʿ '&ʿ #8ʿ +ʿ $>&+"?;+ʿ R1+" !&+ʿ #8ʿ ")&ʿ 5&$!&6ʿ "#ʿ @&ʿ &9$%'&(ʿ $'(ʿ (&$-"ʿ *ʿ ")ʿ $!!#,('.ʿ "#ʿ $*ʿ ʿ $'(ʿ 'ʿ +)$--ʿ $'(ʿ %$?ʿ @&ʿ -$*81-ʿ "#ʿ $'(ʿ 8#,ʿ")&ʿ +$ (ʿ E$"!)%&'6ʿ &,>&$'"+ʿ #8ʿ")&ʿ E$"!)6ʿ 5$",#-+6ʿ $'(ʿ #")&,ʿ 5&,+#'+ʿ #,ʿ5&,+#'ʿ +#ʿ $22#ʿ '"&(ʿ $+ʿ $8#,&+$ (6ʿ "#ʿ !$--ʿ $'(ʿ ,&C1 ,&ʿ $'?ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ "#ʿ $ (ʿ $'(ʿ $++ +"ʿ")&%ʿ 'ʿ "$: '.ʿ +1!)ʿ &-#'+6ʿ #.1&+6ʿ <$.$@#'(+6ʿ $'(ʿ $--ʿ (+#,(&,-?ʿ #,ʿ +1+2&!"&(ʿ 5&,+#'+ʿ $+ʿ $8#,&+$ (ʿ 'ʿ $'(ʿ 'ʿ !$+&ʿ $'?ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ +)$--ʿ $++$1-"ʿ #,ʿ ,&+ +"ʿ #,ʿ +)$--ʿ 2,#%#"&ʿ #,ʿ &'!#1,$.&ʿ ")&ʿ $++$1-"ʿ '.ʿ #,ʿ ,&+ +" '.ʿ $'?ʿ #8ʿ ")&ʿ E$"!)%&'6ʿ &>&$'"+ʿ #8ʿ ")&ʿ E$"!)6ʿ 5$",#-+6ʿ #,ʿ #")&,ʿ 5&,+#'ʿ #,ʿ 5&,+#'+ʿ +#ʿ $22#ʿ '"&(ʿ $+ʿ $8#,&+$ (6ʿ 'ʿ ")&ʿ 9&!1" #'ʿ #8ʿ ")&,ʿ 31"?6ʿ &4&,?ʿ +1!)ʿ 5&,+#'ʿ +)$--ʿ 8#,ʿ &4&,?ʿ +1!)ʿ #88&'!&ʿ 8#,8& "ʿ $'(ʿ 2$?ʿ $'?ʿ 1%ʿ '#"ʿ &9!&&('.ʿ #,"?ʿ) --'.+ʿ $'(ʿ 'ʿ !$+&ʿ $'?ʿ +1!)ʿ 88&'(&,ʿ +)$--ʿ '#"6ʿ #'ʿ #'4 !" #'6ʿ 2$?ʿ ")&ʿ +$ (ʿ #,8& "1,&6ʿ +1!)ʿ R1+" !&ʿ +ʿ)&,&@?ʿ ,&C1 ,&(ʿ "#ʿ !#%% "ʿ) %6ʿ #,ʿ ")&%ʿ "#ʿ ")&ʿ #1+&ʿ #8ʿ #,N ,&!" #'6ʿ ")&,&ʿ "#ʿ @&ʿ :&2"ʿ "#ʿ)$,(ʿ $@#1,6ʿ 8ʿ ")&ʿ +$ (ʿ R1+" !&ʿ +)$--ʿ +#ʿ #,(&,6ʿ 8#,ʿ $'?ʿ %&ʿ '#"ʿ &9!&&('.ʿ),&&ʿ $-&'($,ʿ #'")+6ʿ 1'-&++ʿ +1!)ʿ #,8&ʿ "1,&ʿ +)$--ʿ @&ʿ +##'&,ʿ 2$ (ʿ #,ʿ +$" +8 &(ʿ $'(ʿ 'ʿ !$+&ʿ $'?ʿ 88&'(&,ʿ +)$--ʿ @&ʿ !#'4 !"&(ʿ #8ʿ $'?ʿ !#%% "" '.ʿ ")&ʿ +$ (ʿ R1+" !&ʿ %$?6ʿ @?ʿ E$,,$'"ʿ 1'(&,ʿ) +ʿ)$'(ʿ $'(ʿ +&$-6ʿ 8ʿ)&ʿ +)$--ʿ ")'.ʿ 8 "6ʿ ")&ʿ #+"+ʿ X 8ʿ $'?[ʿ "#ʿ @&ʿ -&4 &(ʿ @?ʿ 3 +",&++ʿ $'(ʿ $-&ʿ #8ʿ")&ʿ H##(+ʿ $'(ʿ)$""&-+ʿ #8 ")& @23H" OD#!ʿ *136ʿ .ʿ @23H" OD#!ʿ

")&' 88&'(&,6' ,&"1,' '.'")&' 4&,2-1+' X 8' $'?[' #8'")&' #'&?' ,$+&(' #,' ,&!#4&,&(6' $8"&,' (+!)$,. '.'")&' +$ (' #,8& "1,&' $'(' ")&' #+"+' $'(' 92&'!&+' #8' ,&!#4&, '.' $'('-&4? '.' ")&' +$%&6' "#' ")&' *'&,' #8' ")&' H##(+' $'(')$""&-+' +#' +& L&(' $'(' (+",$ '&(

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' '(' @&' '' 81,")&,' &'$!"&(')$"' $--' P $"!)%&'6' &,>&$'"+' #8' ")&' E $"!)6' $'(' 5$",#-+' +)$--' @&' +*#,'6' '' $+' #'+"$@-&+' @&8#,&' $'?' R1+" !&' #8' ")&' 5&$!&6' $'(' $!'' $+' +1!)' *) -&' '' &9&!1" #'' #8' ")&' 5#*&,+' $'(' 1")# " &+' #8' ") +' !"' $'(' ")&?' $,&')&,&@?' '4&+"&(' * ")' $'(' +)$--')$4&' B$'(' &'>#?' ")&' - :&' 5#*&,+' $'(' 1")#, " &+6' 5, 4 -&.&+' $'(' %%1' " &+6' $'(' +)$--' @&' +1@>&!'' $'(' - $@-&' "#' +1!)' $'(' ")&' - :&' 5&'$-" &+' $'(' #,8& "1,&+6' $+' $'?' #'+"$@-&' #,' #'+"$N @-&+' +' #,' $,&' '4&+"&(' * ")6' #,' +)$--' #,' %$?')$4&' $'(' &'>#?6' #,' +' #,' $,&' #,' +)$--' @&' +1@>&!'' #,' - $@-&' "#' @?' $ *] 5,#4 (&(' '&4&,")&-&++6' ")$"' '#' 5&,+#'' @?' @& '.' +* ,'' '' $'(' $!" '.' $+' ,' &9&!1" '.' ")&' 88 !&' #8' $' #'+"$@-&' +)$--' ")&,&@?' .$ '' $' &""-&%&'' '' +1!)' 5$, +)

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' '(' @&' '' 81,")&,' &'$!"&(')$"' '' $--' +1!)' $+&+' '' *) !)' $'?' #8' ")&' 31" &+' 1+1$--?' 2&,8#,%&(' @?' #'+"$@-&+' +)$--')$4&' @&&'' &9&!1"&(' @?' $'?' #8' ")&' 88 !&,+' $22# '"&(' @?' ")&' '+2&!"#,+' $+')&,& 'B@&8#,&' &'$!"&(6' $--' &&+' $'(' --#*$'!&+' 8#,' ")&' 5&,8#,%$'!&' #8' +1!)' 31" &+' +)$--' @&' 2$ ('#4&,' "#' ")&' +$ (' '+2&!"#,+6' "#' @&' @?' ")&%' $22- &(' '' $ (' #8' ")&' $"&' -&4 &(' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"

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< ' '(' @&' '' 81,")&,6' &'$!"&(')$"' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' '+2&!"#,+' 8,#%' %&' "#' %&' "#' 2,#4 (&' $'(' :&&2' 12' ,&' '. '&+6' B*")' D2&+' $'(' #")&,' V"&'+ -+' 2,#2&,' 8#,' ")&' +$%&6' 8#,' ")&' V+&' #8' ")&' 5$, +)' $(#2" '.' ")&' 5,#4 + #'+' #8' ") +' !"6' $'(' "#' 2,#4 (&' $' 2,#2&,' 5-$!&' #,' 5-$!&+' 8#,' ")&' :&&2 '.' #8' ")&' +$%&6' $'(' "#' 2-$!&' +1!)' '. '&+' 1'(&,' ")&' $,&' #8' +#%&' 2,#2&,' 5&,+#'' #,' 5&,+#'+6' $'(' "#' %$:&') %' #,' ")&%' +1!)' --#*$'!&' 8#,') +' #,' ")&,' ,#1@-&' $+' %$?' @&' ")#1.)'' ,&$+#'$@-&6' $'(' ")&' 92&'!&+' $""&'(' '.' ")&' 2,#N 4 ('.' $'(' :&&2 '.' #8' +1!)' '. '&+' +)$--' @&' 2$ (' #1'' #8' ")&' #'&?' $1")#, L&(' "#' @&' ,&!& 4&(' @?' ")&' '+2&!"#,+' 1'(&,' ")&' 5,#4 + #'+' #8' ") +' !"

2OC' / #E' 3 ' OD' C I3' IC'

< ' '(' @&' '' 81,")&,' &'$!"&(6')$"' '' +)$--' @&' -$*81-' 8#,' ")&' '+2&!"#,+6' $'(' ")&?' $,&')&,&@?' &%2#*&,&(6' 8,#%' %&' "#' %&' "#' !$1+&' +1!)' $%2' ,#'+' #,' $%2' 5#+"+' #,' #")&,' 5#+"+' "#' @&' 21'' #,' 8 9&(' 12#'' #,' $.$ '+'' ")&' E$--+' #,' 5$- +$(#&+' #8' $'?' #1+&+6' &'&N %&'"+6' 1 -('.+6' #,' '!-#+1,&+6' X(# '.' $+' - ""-&' 3$%$.&' $+' %$?' @&' 2,$!" !$@-&' ")&,&"#6[' #,' "#' @&' 21'' 12' $'(' &,&!"&(' '' +1!)' #")&,' $''&,6' * ") '' $--' #,' $'?' #8' ")&' +$ (' #$(+6' ",&&"+6' $'(' 5-$!&+' * ") '' ")&' % "+' #8' ") +' !"6' $+' ")&?' +)$--' ") ':2,#2&,' $'(' $-+#' "#' !$1+&' +1!)' 1%@&,' #8' $%2+6' #8' +1!)' L&+' $'(' #,"+6' "#' @&' 2,#4 (&(' $'(' $88 9&(' $'(' 21'' 12#'' +1!)' $%2' ,#'+' $'(' $%2' 5#+"+6' $+' ")&?' +)$--' ") ':' '&!&++$,?' 8#,' - .)" '.' $--' #,' $'?' #8' +1!)' #$(+6' ",&&"+6' $'(' 5-$!&+6' $'(' !$1+&' ")&' +$%&' "#' @&' - .)"&(' * ")' H$+6' -6' #,' #")&,' +&6' 8#,' +1!)' 1%@&,' #8' #1,+' '' &4&,?' *&'"?B8#1,' #1,+' $+' ")&?' +)$--' ") ':' '&!&++$,?' $'(' $-+#' "#' !$1+&' +1!)' $' 1%@&,' #8' E $"!)B)#1+&+' #,' E $"!)B@#9&+' "#' @&' 2,#4 (&(6' &,&!"&(6' #,' $88 9&(' $+' ")&?' +)$--' ") ':' '&!&++$,?

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K'&!&++$,?ˢ 8#,ˢ *$"!) '.ˢ $--ˢ #,ˢ $'?ˢ #8ˢ ")&ˢ ",&&"+6ˢ #$(+66ˢ $'(ˢ 5-$!&+ˢ
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< ˢ 5,#4 (&(ˢ $-*$?+6ˢ $'(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(ˢ)$"ˢ '#") '.ˢ 2E+ CDEˢ # 3ˢ
)&,& 'ˢ !#'"$ '&(ˢ +)$--ˢ &9"&'(ˢ #,ˢ @&ˢ !#'+",1&(ˢ "#ˢ &9"&'(ˢ "#ˢ $1")#, L&ˢ
#,ˢ &%2#*&,ˢ ")&ˢ +$ (ˢ '+2&!"#,+6ˢ #,ˢ $'?ˢ #(?ˢ #,ˢ #(&+ˢ 5#-"!ˢ #,ˢ Z 3" I3ˢ
#,2#,$"&6ˢ #,ˢ 5&,+#'ˢ #,ˢ 5&,+#'+ˢ !#'",$!" '.ˢ *")ˢ ")&ˢ +$ (ˢ '+2&!"#,+ˢ H #ED#3!ˢ
8#,ˢ -.)" '.ˢ *")ˢ H$+ˢ +1!)ˢ #$(+6ˢ ",&&"+6ˢ $'(ˢ 21@-!ˢ 5-$!&+6ˢ "#ˢ !$,,?ˢ
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5 2&+6ˢ $.$ '+"6ˢ '"#6ˢ #,ˢ "),#1.)ˢ $'?ˢ 3*&-- '.ˢ #1+&ˢ #,ˢ 3*&-- '.ˢ
#1+&+6ˢ $'18$!"#, &+6ˢ 21@-!ˢ #,ˢ 2, 4$"&ˢ 1-('.+6ˢ #,ˢ "#ˢ !#'" '1&ˢ
")&ˢ +$%&6ˢ *")#1"ˢ ")&ˢ #'+&'ˢ 'ˢ E, " '.ˢ #8ˢ ")&ˢ *'&,ˢ #,ˢ *'&,+6
!!12 &,ˢ #,ˢ !!12 &,+ˢ 8#,ˢ ")&ˢ %&ˢ @& '.ˢ #8ˢ +1!)ˢ 3*&-- '.ˢ #1+&ˢ
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,&+2&!" 4&-?6ˢ '#,ˢ "#ˢ &'$@-&ˢ $'?ˢ #(?ˢ #,ˢ #(&+ˢ 5#-"!ˢ #,ˢ #,2#,$"&6ˢ
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< ˢ 5,#4 (&(ˢ $-+#6ˢ $'(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(ˢ)$"ˢ 'ˢ !$+&ˢ ")&ˢ 'Z#D/Eˢ .ˢ
#-6ˢ 5"!) '.6ˢ #,ˢ 5$4&%&'ˢ #8ˢ $'?ˢ #$(ˢ #,ˢ E$?6ˢ 8#,ˢ ")&ˢ 51,2#+&ˢ
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+$%&6ˢ @&ˢ @,#:&'ˢ 12ˢ *")ˢ ")&ˢ #'+&'ˢ #8ˢ ")&ˢ *'&,ˢ #,ˢ *'&,+ˢ #8ˢ ")&ˢ .ˢ+ CDE
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+$%&ˢ ,&%#4&(6ˢ "ˢ +)$--ˢ @&ˢ -$*81-ˢ 8#,ˢ +1!)ˢ *'&,ˢ #,ˢ *'&,+ˢ $"ˢ $'?
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4$,?ˢ ")&ˢ 5#+"#'ˢ #8ˢ +1!)ˢ 5 2&ˢ #,ˢ 5 2&+6ˢ $'ˢ #,ˢ $'+6ˢ $'(ˢ "#ˢ ,&-$?
M')&ˢ +$%&6ˢ +#ˢ ")$"ˢ '#ˢ 3$%$.&ˢ @&ˢ (#'&ˢ ")&,&@?ˢ "#ˢ ")&ˢ +$ (ˢ #(?ˢ #,ˢ
#(&+ˢ 5#-"!ˢ #,ˢ #,2#,$"&ˢ #,ˢ 5&,+#'ˢ #,ˢ 5&,+#'+ˢ !#'",$!" '.ˢ *")ˢ
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#,2#,$"&ˢ #,ˢ 5&,+#'ˢ #,ˢ 5&,+#'+ˢ !#'",$!" '.ˢ *")ˢ ")&ˢ +$ (ˢ '+2&!"#,+6
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#,ˢ +&"ˢ 12ˢ @?ˢ ,(&,ˢ #8ˢ ")&ˢ +$ (ˢ '+2&!"#,+ˢ 'ˢ 21,+1$'!&ˢ #8ˢ ") +ˢ !"6ˢ
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+#&4&,6ˢ %$: '.6ˢ 81,'+) '.6ˢ #,ˢ +122-? '.ˢ $'?ˢ H$+ˢ 1+&(ˢ #,ˢ @1,'ˢ 8#,ˢ
-.)" '.ˢ $'?ˢ .)*$?6ˢ ",&&"6ˢ #,ˢ 5-$!&6ˢ #,ˢ $'?ˢ #1+&+6ˢ $'18$!"#,?6ˢ
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")&ˢ 5,#4 +#'+ˢ #8ˢ ") +ˢ !"6ˢ +)$--ˢ $"ˢ ")& ,ˢ #*'ˢ 92&'!&6ˢ %#%&($"&-?ˢ
$8"&,ˢ ,&!& 4 '.ˢ #"!&ˢ @?ˢ 5$,#-ˢ #,ˢ 'ˢ E, " '.ˢ 8,#%ˢ $'?ˢ 5&,+#'ˢ #,ˢ
5&,+#'+ˢ *)$"+#&4&,6ˢ "#ˢ @&ˢ .4&'ˢ #,ˢ -&8"ˢ $"ˢ ")& ,ˢ 88 !&ˢ #,ˢ 1+1$-ˢ 5-$!&ˢ
#8ˢ",$'+$!" '.ˢ ")& ,ˢ 1+ '&++6ˢ #8ˢ $'?ˢ +1!)ˢ +!$2&ˢ #8ˢ H$+6ˢ !$1+&ˢ ")&ˢ
%#+"ˢ +2&&(?ˢ $'(ˢ &88&!"1$-ˢ &$+1,&+ˢ "#ˢ @&ˢ "$:&'ˢ "#ˢ +"#2ˢ #,ˢ 2,&4&'"ˢ
+1!)ˢ H$+ˢ 8,#%ˢ &+!$2 '.5ˢ $'(ˢ 'ˢ !$+&ˢ ")&ˢ +$ (ˢ #(?ˢ #,ˢ #(&+ˢ 5#-"!ˢ +D#2736ˢ. /ˢ
#,ˢ #,2#,$"&6ˢ #,ˢ 5&,+#'ˢ #,ˢ 5&,+#'+ˢ $+ˢ $8#,&+$ (6ˢ +)$--ˢ '#"6ˢ *") 'ˢ &.-&!"
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*&'"?8#1AA' '&9" $8"&,' +1!)' #" !&' @?'5$,#" #,' ' ' E," '.
@& '.' . 4&' ' '8' $'?' p1&)' +!$2&' #8' XR$+6' &88&!"1$--?' +"#2' $'Q' 2,&4&' '
")&' H$+' 8,#%' &+!$2 70' $'Q' *)#--?' $'(' +$" +8$!"#, -?' ,&%#4&' ")&'
$1+&' #8' #%2-$ '"A' ")&' ' $'(' ' ' &4&,?' +1!)' $+&' ")&' +$ (' #(?' #,'
#(&+' 5#- " !' #,' #,2#,$"&6' #,' 5&,+#' ' #,' 5&,+#' '+' $+' $8#,&+$ (6' +)$--'
8#,' &4&,?' +1!)' 88&'!&' 8#,8& ' $'(' 2$?' $'?' 1%' '#" &9!&&('.' 4&'
5#1'(+' 8#,' &$!)' $'(' &4&*' 3$?6' $8"&,' ")&' 92 ,$" #' ' #8' *&'"?B8#1,'
#1,+' 8,#%' ")&' %&' #8' . 4 '.' $'?' +1!)' #" !&6' (1, '.' *) !)' ")&'
H$+' +)$--' @&' +188&,&(' "#' &+!$2&' $+' $8#,&+$ (' *) !)' 5&'$-"?' +)$--' 8,#%'
%&' "#' %&' @&' ,&!#4&,$@-&' ' ' $' +1%%$,?' E$?6' #' ' ")&' $")' #,'
88 ,%$" #' ' #8' '&' #,' %#,&' !,&(@-&' E "'&++' #,' E "'&++&+6' @&8#,&' $'?'
*#' R1+" !&+' #8' ")&' 5&$J77' $'(' +)$--' $'(' %$?')&' ,&!#4&,&(6' * ")' $--' 7
,&$+#'$@-&')$,.&+6' 8&?' 3 +",&++' $'(' $-&' #8' ")&' H##(+' $'(')$"'&-+'
K#8' $'?' +1!)' # I 7 8' #(&+' 5#- " !' #,' #,2#,$"&6' ' 5&,+#' ' #,' 5&,N
+#'+' $+' $8#,&+$ (6' @?' ")&' E$,,$'" #8' $'?' *#' R1+" !&+' #8' ")&' 5&$!&'
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5,#4 + #'+' $+' $,&')&,& ' ' (,&!"&(' "#1!) '.' #")&,' 5&'$-" &+' "#' @&'
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+ ZD/'3' H #FD6' 2Z26' @2E" #4E' .' 2E' @ /]E

' '(' @&' "81,")&,' &'$!"&(')$" "+)$--' @&' -$*81-' 8#,' ")&'
#(?' #,' #(&+' 5#- " !' #,' #,2#,$"&6' #,' #")&,' 5&,+#' ' ' 5&,+#'+'
*)#+#&4&,6' %$: '.6' 81,' +) '.6' #,' +122-? '.' $'?' H$+' 1+&(' #,' @1,' '
8#,' - .)" '.' $'?' .)*$?6' ",&&"6' #,' 5-$!&6' #,' $'?' #1+&6' $'18$!'
"#,?6' 1 -('.f #,' #")&,' 5,&% +&+6' * ") ' ' ")&' % "+' #8' $'?' 5$, +)'
$(#2" '.' ")&' 5,#4 + #'+' #8' ") +' !"6' "#' -$?' ,#' ' 5 2&+6' #8' +1!)'
,&$(")6' 3&2")6' 1'"-' 3 %&'+ #'+6' $'(' ' ' +1!)' $''&,' $+' ")&?' +)$--'
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E$+) '.+' #,' ")&,' E$+"&' J>1 (+' *) !)' %$?' $, +&' ' ' ")&' 5,#+&!1" #' '
#8' ")&' E#,:+' $8#,&+$ (6' ")&' +$ (' #(?' #,' #(&+' 5#- " !' #,' #,2%$"&'
#,' #")&,' 5&,+#' ' 5&,+#'+' $+' $8#,&+$ (6' (# '.' $+' - ""-&' 3$%$.&' $+'
%$?' @&' ' -$? '.' ")&' +$ (' 5 2&+6' $'(' %%&($"&-?' ,&2$, '.6' $" ")&,'
#* ' ' 92&'!&6' $--' +1!)' 3$%$.&' 2,#4 (&(' ")$" '#' +1!)' E$+) '.+' #,'
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' ' ")&' $'18$!"1,&' #8' +1!)' H$+6' +)$--' @&' !#'(1!"&(' #,' !#'4&?&('
'"#' $'?' 4&,6' ,##:6' $'$-6' #,' ,1' ' '.' ",&$%' ' $'(' ")$" '#' +1!)'
5 2&' +)$--' @&' -$ (' ' $'?' "1$" #' ' *)&,&' ")&' +$%&' !$'6' +)$--6' #,' %$?'
' ' $'?' $''&,' '"&,8,&' * ")6' 2,&>1(!&6' #,' $88&!" $'?' #8' ")&' 2,&+&' '
#,' 81"1,&' 21@- !' #,' 2, 4$"&' E&--+6' &*& +6' #,' 3,$ '+' * ") ' ")&' % "+'
#8' ")&' 5$, +)' $(#2" '.' ")&' 5,#4 + #'+' #8' ") +' !"6' #,' * ")#1" ")&'
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+D#2736'. /' H #FD6 #4' @2E" #4E' #3 ' 2#6' = FD/!' H

' '(' @&' "81,")&,' &'$!"&(6')$" 8' $'?' #(?' #,' #(&+' 5#- " !'
#,' #,2#,$"&+' #%2$'?' #,' #%2$' &+' #8' 5,#2, &"#,+6' #,' $'?' #")&,'
5&,+#' ' #,' 5&,+#'+' *)$"+#&4&,6' %$: '.6' 81,' +) '.6' #,' +122-? '.' $'?'
H$+' 1+&(' #,' @1,' ' 8#,' - .)" '.' $'?' .)*$?6' ",&&"6' 5-$!&6' #,'
$'?' #1+&6' $'18$!"#,?6' 1 -('.6' #,' #")&,' 5,&% +&+6' E "))' ")&'
% "+' #8' $'?' 5$, +)' $(#2" '.' ")&' 5,#4 + #'+' #8' ") +' !"6' +)$--' $"
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*$+"&' C1 (+6' 1@+"$'!&+6' #,') '.+' *)$"+#&4&,' *) !)' +)$--' $, +&' #,'
@&' %$(&' ' ' ")&' 5,#+&!1" #' ' #8' ")&' +$ (' H$+' E#,:+6' #,' ' ' ")&' $'1N
8$!"1,&' #,' 5,#!&++' %$: '.' #,' 2,#!1, '.' +1!)' H$+6' '"#' $'?' 4&,6
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&&(&,6ʼ 5#'(ʼ #,ʼ 2, '.)&$(6ʼ #,ʼ E&--6ʼ #,ʼ '"#ʼ $'?ʼ 3,$ '6ʼ &*&,6ʼ #,ʼ
3 "!)ʼ !#%%1' !$" '.ʼ *")ʼ $'?ʼ #8ʼ ")&%6ʼ #,ʼ (#ʼ #,ʼ !$1+&ʼ "#ʼ @&ʼ (#'&ʼ
$'?ʼ ''#?$'!&6ʼ !"6ʼ #,ʼ) '.ʼ "#ʼ ")&ʼ E$"&,ʼ !#'"$ '&(ʼ 'ʼ $'?ʼ #8ʼ
")&%6ʼ *)&,&@?ʼ ")&ʼ E$"&,ʼ !#'"$ '&(ʼ ")&,& '6ʼ #,ʼ $'?ʼ 5$,"ʼ ")&,&#86ʼ +)$--ʼ
#,ʼ %$?ʼ @&ʼ +2# -&(6ʼ 8#1-&(6ʼ #,ʼ !#,,12"&(6ʼ ")&'ʼ $'(ʼ 'ʼ &4&,?ʼ +1!)ʼ $+&ʼ
$'?ʼ +1!)ʼ #(?ʼ #,ʼ #(&+ʼ 5#- " !ʼ #,ʼ #,2#,$"&6ʼ #%2$'?ʼ #,ʼ #%N
2$' &+ʼ #8ʼ 5,#2, &"#,+6ʼ #,ʼ #")&,ʼ 5&,+#'ʼ #,ʼ 5&,+#'+6ʼ +#ʼ #88&'('.ʼ $+ʼ
$8#,&+$ (6ʼ +)$--ʼ 8#,8&'ʼ $'(ʼ 2$?ʼ 8#,ʼ &4&,?ʼ +1!)ʼ 88&'!&ʼ ")&ʼ 1%ʼ #8ʼ
*#ʼ)1'(,&(ʼ 5#1'(+ʼ $'(ʼ +1!)ʼ 5&'$-"?ʼ #,ʼ #,8& "1,&ʼ +)$--ʼ $'(ʼ %$?ʼ
@&ʼ +1&(ʼ 8#,ʼ $'(ʼ ,&!#4&,&(6ʼ "#.&")&,ʼ *")ʼ 81--ʼ #+"+ʼ #8ʼ 1"6ʼ 'ʼ $'?ʼ #8ʼ
+ʼ $>&+"?;+ʼ #1,"+ʼ #8ʼ $*6ʼ @?ʼ ,&.1-$,ʼ #,ʼ +1%%$,?ʼ !"#'ʼ #8ʼ 3&@"ʼ
#,ʼ #'ʼ ")&ʼ $+&6ʼ #,ʼ @?ʼ --6ʼ 5-$ '"6ʼ #,ʼ '8#,%$"#'6ʼ *)&,& 'ʼ '#ʼ ++# .'6ʼ
5,#"&!"#'6ʼ 5,4-&.&6ʼ E$.&,ʼ #8ʼ $*6ʼ '#,ʼ %#,&ʼ ")$'ʼ '&ʼ %2$,-$'!&ʼ
+)$--ʼ @&ʼ $--#*&(ʼ $'(ʼ ")&ʼ *)#-&ʼ #8ʼ +1!)ʼ 5&'$-"?ʼ +)$--ʼ @&ʼ 2$ (ʼ "#ʼ ")&ʼ
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$-*$?+6ʼ ")$"ʼ '#ʼ +1!)ʼ 5&'$-"?ʼ #,ʼ #,8& "1,&ʼ +)$--ʼ @&ʼ ,&!#4&,$@-&ʼ
1'-&++ʼ ")&ʼ +$%&ʼ @&ʼ +1&(ʼ 8#,ʼ *")'ʼ 9ʼ $-&'($,ʼ #'")+ʼ 8,#%ʼ $8"&,ʼ
")&ʼ %&ʼ *)&'ʼ +1!)ʼ ''#?$'!&6ʼ 1+$'!&6ʼ '>1,?6ʼ 3$%$.&6ʼ !"6ʼ
#,ʼ) '.ʼ +)$--ʼ)$4&ʼ !&$+&(ʼ $'(ʼ (&"&,% '&(] 5,#4 (&(ʼ $-+#6ʼ ")$"ʼ #4&,ʼ
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8#,ʼ #,ʼ ,&!#4&,&(6ʼ 'ʼ !$+&ʼ $'?ʼ #8ʼ ")&ʼ +$(ʼ E$+) '.+ʼ #,ʼ #")&,ʼ *$+"&ʼ
C1 (6ʼ #,ʼ '#+#%&ʼ #,ʼ #88&'+4&ʼ C1 (6ʼ 1@+"$'!&+6ʼ #,ʼ) '.+6ʼ +)$--ʼ
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,1'ʼ #,ʼ 8-#*6ʼ 'ʼ %$''&,ʼ $8#,&+$ (6ʼ '"#ʼ $'?ʼ 4&,6ʼ ,##:6ʼ #,ʼ ,1' ' '.ʼ
",&$%6ʼ #,ʼ $'?ʼ &+&,4# ,6ʼ $'$-6ʼ C1&(1!"6ʼ E$"&,*$?6ʼ &&(&,6ʼ
5#'(ʼ #,ʼ 2, '.)&$(6ʼ #,ʼ E&--6ʼ #,ʼ '"#ʼ $'?ʼ 3,$ '6ʼ &*&,6ʼ #,ʼ 3 "!)ʼ
!#%%1' !$" '.ʼ *")ʼ $'?ʼ #8ʼ ")&%6ʼ #,ʼ $'?ʼ +1!)ʼ ''#?$'!&6ʼ 1+$'!&6ʼ
'>1,?6ʼ 3$%$.&6ʼ !"6ʼ #,ʼ) '.ʼ +)$--ʼ @&ʼ (#'&ʼ #,ʼ !$1+&(ʼ "#ʼ @&ʼ (#'&ʼ
$+ʼ $8#,&+$ (6ʼ $'(ʼ #" !&ʼ ")&,&#8ʼ 'ʼ E, " '.ʼ +)$--ʼ)$4&ʼ @&&'ʼ .4&'ʼ
@?ʼ $'?ʼ 5&,+#'ʼ #,ʼ 5&,+#'+ʼ "#ʼ *)#%ʼ ")&ʼ +$%&ʼ +)$--ʼ @&-#'.6ʼ #,ʼ @?ʼ $'?ʼ
#")&,ʼ 5&,+#'ʼ #,ʼ 5&,+#'+ʼ *)#%+#&4&,6ʼ "#ʼ ")&ʼ +$(ʼ #(?ʼ #,ʼ #(&+ʼ
5#- " !ʼ #,ʼ #,2#,$"&6ʼ #%2$'?ʼ #,ʼ #%2$' &+ʼ #8ʼ 5,#2, &"#,+6ʼ #,ʼ $'?ʼ
#8ʼ ")&%6ʼ #,ʼ #")&,ʼ ")&ʼ 5&,+#'ʼ #,ʼ 5&,+#'+ʼ %$: '.6ʼ 81,'+) '.6ʼ #,ʼ
+122-? '.ʼ $'?ʼ H$+ʼ 1+&(ʼ #,ʼ @1,'"ʼ 8#,ʼ -.)" '.ʼ $'?ʼ .)*$?6ʼ ",&&"6ʼ
#,ʼ 5-$!&6ʼ #,ʼ $'?ʼ #1+&6ʼ $'18$!"#,?6ʼ 1-('.6ʼ #,ʼ #")&,ʼ 5,&% +&+6ʼ
*")ʼ $'?ʼ 5$,+)ʼ #,ʼ 5$,"ʼ #8ʼ $ʼ 5$,+)ʼ $(#2"ʼ '.ʼ ")&ʼ 5,#4+#'ʼ #8ʼ ")+ʼ
!"6ʼ +#ʼ #88&'('.6ʼ #,ʼ "#ʼ)+6ʼ)&,6ʼ #,ʼ ")&,ʼ -&,:ʼ #,ʼ -&,:+6ʼ #,ʼ "#ʼ $'?ʼ
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5&,+#'ʼ #,ʼ 5&,+#'+6ʼ +)$--ʼ '#"6ʼ *")ʼ *&'"?B8#1,ʼ #1,+ʼ $8"&,ʼ +1!)ʼ
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'#+#%&ʼ #,ʼ #88&'+4&ʼ C1 (+6ʼ 1@+"$'!&+6ʼ #,ʼ) '.+6ʼ 8,#%ʼ @& '.ʼ
&%2"&(6ʼ (,$ '&(6ʼ !#'(1!"&(6ʼ #,ʼ !#'4&?&(6ʼ #,ʼ 8,#%ʼ ,1' '.ʼ #,ʼ
8-#* '.6ʼ 'ʼ %$''&,ʼ $8#,&+$ (6ʼ $'(ʼ 'ʼ &4&,?ʼ +1!)ʼ !$+&ʼ ''#?$'!&6ʼ
1+$'!&6ʼ '>1,?6ʼ 3$%$.&6ʼ !"6ʼ #,ʼ) '.ʼ 8,#%ʼ @&ʼ '.ʼ (#'&ʼ $+ʼ $8#,&+$ (6ʼ
+$(ʼ ($?ʼ $'(ʼ ")&'ʼ &4&,?ʼ +1!)ʼ $+&ʼ ")&ʼ #(?ʼ #,ʼ #(&+ʼ 5#- " !ʼ
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" #'&(' 5&'$-"?' #8' *&'"?' 5#1'(+6' ")&' 1%' #8' &'' 5#1'(+' 8#,' &$!)'
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#,8& "1,&+' '8- !"&(' #,' %2#+&(' @?' ") +' !"6' #,' @?' 4 ,"1&' #8' $'?'
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)&,&#8' +' '#"')&,& '' #")&, +&' 2,#4 (&(' 8#,[6' %$?' '' !$+&' #8' #'N
2$?%&''' ")&,&#8' @&' ,&!#4&,&(' '' $ +1%%$,?' E$?6' @?' ,(&,' $'(' (N
>1(!$" #'' #8' $'?' *#' R1+" !&+' #8' ")&' 5&$!&6' #'' #%2-$ ''' "#' ")&%'
8#,' ")$"' 51,2#+&' &9) @ "&(6' $'(' $8"&,*$,(+' @&' -&4 &(6' $+' *&--' $+' ")&'
#+"+' X 8' $'?[' #8' +1!)' 5,#!&&('.+6' #'' #'2$?%&''6' @?' 3 +",&++' $'('
$-&' #8'")&' H##(+' $'(')$""&-+' #8")&' 88&'(&,' #,' ,&+2&!" 4&' 88&'(&,+6'
#,' 5&,+#'' #,' 5&,+#'+' - $@-&' "#' 2$?' ")&' +$%&6' @?' E$,,$''' 1'(&,' ")&'
$'(+' $'(' &$-+' #8' +1!)' R1+" !&+6' *)#' $,&')&,&@?' $1")#, L&(' $'('
,&C1 ,&(' "#' +1%%#'' $'(' &9$% '&' $'?' E "'&++' 12#'' $")' #,' 88 ,N
%$" #'' #8' $'(' !#'!&,' '.' +1!)' 88&'!&+6' $""&,+6' $'(') '.+6' $'('
"#')&$,' $'(' (&"&,% '&' ")&' +$%&' $'(' ")&' 4&,2-1+' X 8' $'?[' #8' ")&'
#'&?' ,$ +&(' #,' ,&!#4&,&(6' $8"&,' (+!)$,. '.' ")&' '&6' 5&'$-"?6' #8'
#,8& "1,&' 8#,' *) !)' +1!)' E$,,$''' +)$--' @&' ++1&(6' $'(' ")&' #+"+'
$'(' 92&'!&+' #8' ,&!#4&, '.' $'(' -&4? '.' ")&' +$%&' X 8' $'?' +1!)' ")&,&'
@&[6' +)$--' @&' ,&'(&,&(' "#' ")&' *'&,' #,' *'&,+' #8' ")&' H##(+' $'('
)$""&-+' +#' +& L&(' $'(' (+",$ '&(' $--' *) !)' 5&'$-" &+6' '#"')&,& ''
(,&!"&(' "#' @&' #")&,* +&' $22- &(6' +)$--' @&' 2$ (' "#' ")&' +$ (' '+2&!"#,+'
#,' ")&,' ,&$+1,&,6' "#' @&' $22- &(' 8#,' +1!)' 51,2#+&+' #8' ") +' !"' $+'
")&' +$ (' '+2&!"#,+' +)$--' #,(&,' $'(' (,&!"6' &9!&2"' '' $--' +1!)' $+&+'
*)&,&' ")&' 5&'$-"?' #,' #,8& "1,&' +)$--' @&' '!1,,&(' @?' ")&' +$ (' 'N
+2&!"#,+6' $'(' ")&'' ")&' +$%&' +)$--' @&' 2$ (' "#' ")&' '8#,%&,' $'(' ''
+)$--' @&' -$*81-' 8#,")&' +$ (' R1+" !&+' "#' #,(&,' ")&' 88&'(&,' #,' 88&'(&,+'
+#' !#'4 !"&(' "#' @&' (&"$ '&(' '' +$8&' 1+"#(?' 1'" -' &"1,'' !$'' @&' !#'N
4&' &'"-?' %$(&' "#' +1!)' E$,,$''' #,' E$,,$''+' #8' 3 +",&++6' 1'-&++' ")&'
+$ (' 88&'(&,' #,' 88&'(&,+' +)$--' . 4&' +188 ! &''' &!1, "?6' "#' ")&' $" '
8$!" #'' #8' +1!)' R1+" !&+6' 8#,') +6')&,6' #,' ")& ,' 22&$,$'!&' @&8#,&' ")&'
+$ (' R1+" !&+' #'' +1!)' 3$?' #,' 3$?+' $+' +)$--' @&' $22# '"&(' 8#,' ")&'
&"1, '' #8' +1!)' E$,,$''' #,' E$,,$''+' #8' 3 +",&++6' +1!)' 3$?' #,' 3$?+'
'#"' @& '.' %#,&' ")$'' &4&'' 3$?+' 8,#%' ")&' %&' #8' "$: '.' +1!)'
&!1, "?6' $'(' *) !)' &!1, "?' ")&' +$ (' R1+" !&+' $,&')&,&@?' &%N
2#*&,&(' "#' "$:&' @?' *$?' #8' &!#.' L$'!&' #,' #")&,* +&' @1"' 8' 12#''
3"D' =D3I/#' #8' EIH"' @2//2#3 / @2//2#3E '' E"27' $22&$,' ")$"' #
EI..HD#3

+188 ! &'" 3 +",&++ !$'' @&)$(' *)&,&12#'' "# -&4?")& +$ (' 5&'$-"? #,'
5&'$-" &+ $'(' +1!)' #+"+ $+ $8#,&+$ (6 $'(' ")& +$%& +)$-- '#" @&
8#,") * ")' 2$ (6 #,' '' !$+& " +)$-- $22&$,' "# ")& $" +8$!" #'' #8 $'?
+1!)' R1+" !&+6 12#'' ")& #'8&++ #'' #8 ")& 88&'(&,' #,' 88&'(&,+6 #,'
#")&,* +&6 ")$")&6 +)&6 #,' ")&?)$4& #,')$")' '#" +188 ! &'" H##(+
$'(')$""&-+ *)&,&12#'' +1!)' 5&'$-" &+6 #,8& "1,&+6 #+"+6 $'('
92&'!&+ !$'' @& -&4 &(' 8 $ E$,,$'" #8 3 +",&++ *&,& ++1&(6 +1!)'
R1+" !&+ +)$-- '#" @& ,&C1 ,&(' "# ++1& +1!)' E$,,$'" #8 3 +",&++6 $'('
")&,&12#'' " +)$-- @& -$*81- 8#,' +1!)' R1+" !&+6 $'(' ")&? $,&)&,&@?
,&C1 ,&(' $'(' &%2#*&,&(6 @? E$,,$'" #,' E$,,$'"+ 1'(&,' ")& ,' $'(+
$'(' &$-+6 "# !#%% " +1!)' 88&'(&,' #,' 88&'(&,+ "# ")& #%%#''
H$#- #,' #1+& #8 #,,&!" #'' '' ")& +$ (' #1'"? #,' 5-$!& '' *) !)'
")& +$ (' 5$, +)' +)$-- @& + "1$"&6 ")&,& "# @& :&2"6 * ")' #,' * ")#1"
)$,(' $@#1,6 * ")#1" $ - #,' $ '2, L&6 8#,' $'? %& '#" &9!&&('.'
9 $-&'($,' #'")+6 #,' 1'" - +1!)' 88&'(&,' #,' 88&'(&,+ +)$--)$4&
2$ (' +1!)' 5&'$-"? #,' 5&'$-" &+ $'(' $-- #+"+ $'(')$,.&+ $""&'('.'
+1!)' 5,#!&&('.+ $+ $8#,&+$ (6 "# @& $+!&,"$ '&(' @? +1!)' R1+" !&+6 #,'
+)$-- #")&,* +& @& (+!)$,.&(' @? (1& #1,+& #8 $*

< ' 5,#4 (&(' $-*$?+6 $'(' @& " 81,")&,' &'$!"&(')$" '#") '.' '+2&!"#,+ D&D O C3DG'
)&,& '' !#'"$ '&(' +)$-- @& (&&%&(6 !#'+",1&(6 #,' "$:&'' "# &9"&'(' "# ./ O' CD/E #27
,&'(&,' ")& +$ (' '+2&!"#,+ 2&,+#'$--?6 #,' $'? #8 ")& ,' H##(+ $'('
)$""&-+ X#")&,' ")$'' +1!)' $+ %$? @& '4&+"&(' '' ")&%' '' 21,+1$'!&
#8 ") + !"[6 - $@-& "# ")& 5$?%&'" #8 $'? 1%' #,' 1%+ #8 #'&?
$+ #,' @? *$? #8 #%2&'+$" #'' #,' $" +8$!" #'' '' ")& $+&+ '' *) !)'
+1!)' #%2&'+$" #'' #,' $" +8$!" #'' +)&,& '' (,&!"&(' "# @& %$(& @?
")& +$ (' '+2&!"#,+

< ' '(' @& " 81,")&,' &'$!"&(')$" '# ')$@ "$'" #8 $'? #"2O 32#3E
5$, +)' $(#2" '.' ")& 5,#4 + #'+ #8 ") + !" +)$-- @& (&&%&(' $'' '!#%B
2&"&'" E "'&++ '' $'? !"#'6 1"6 #,' '8#,%$" #'6 #%2-$ '"6
22&$-6 5,#+&!1" #'6 #,' 5,#!&&('.+ "# @&)$(6 %$(&6 2,#+&!1"&(6 #,'
!$,, &(' #'' 1'(&,' ")& 1")#, "? #8 ") + !"

< ' 5,#4 (&(' $-+#6 $'(' @& " 81,")&,' &'$!"&(6)$" 8 $'? 5&,B CCD27 3 '
+#'' #,' 5&,+#'+ +)$-- 8 '(') %+&-86)&,+&-86 #,' ")&%+&-4&+ $.., &4&(' Y12/3D/'
@? $'? ,(&,6 3 ,&!"#'6 #,' 22# '"%&'" #8 ")& +$ (' '+2&!"#,+6 #,' $.$ '+7 ,(&,'
$'? ,(&,' #,' #'4 !"#'' #8 '& #,' %#,& R1+" !& #,' R1+" !&+ #8 ")& .' #ECDH'
5&$!&6 " +)$-- @& -$*81- 8#,' +1!)' 5&,+#'' #,' 5&,+#'+ "# $22&$- "# 3 /E! H'
$'? H&'&,$- #,' T1$,"&,-? &++ #'+ #8 ")& 5&$!& "# @&)&-(' '' $'(' 8#,'
")& #1'"?6 "?6 ('.6 #,#1.)6 #*'6),&6 3 4 + #'6 @&,"?6
#,' 5-$!& '' *) !)' ")& 5$, +)' +)$-- @& + "1$"&6 * ") '' #1,' $-&'($,'
#'")+ '&9" $8"&,' ")& $1+& #8 #%2-$ '" +)$--)$4& $, +&'6 #,' 8
+1!)' &++ #'+ +)$-- @&)&-(' @&8#,& ")& 92 ,$" #'' #8 '& $-&'($,'
#'")6 ")&'' +1!)' 22&$- +)$-- @& %$(& "# ")& +&!#'(-? +1!!&&('.'
&++ #'+6 & ")&,' #8 *) !)' #1," #8 &++ #'+ +)&,&@? &%2#*&,&(' "#
)&$,' $'(' 8 '$--? (&"&,% '& ")& $""&,' #8 ")& +$ (' 22&$-6 $'(' "#
%$:& +1!)' ,(&,' ")&,& '' $+ "# ")&%' +)$-- +&&%' %&&"6 *) !)' ,(&,'
+)$-- @& 8 '$- $'(' !#'!-1+ 4& "# $'(' 12#'' $-- 5$," &+ 2,#4 (&(' ")$"
")& 5&,+#'' #,' 5&,+#'+ +# $22&$- '.' +)$-- . 4& #,' !$1+& "# @& . 4&''
$" -&$+" #1,"&&'' 3$?+ #" !& '' E, " '.' #8) +6)&,6 #,' ")&,'
'"&'" #'' #8 $22&$- '.' $+ $8#,&+$ (6 $'(' #8 ")& $""&,' #,' $1+&
")&,&#86 "# ")& +$ (' '+2&!"#,+6 #,' #")&,' ")& &+2#'(&'" #,' &+2#'N

(&'"+6 ")$" * ") ' 4& 3$?+ $8"&, +1!) #" !& +)$-- &'"&, '"# $
&!#.' L$'!& @&8#,& +#%& R1+" !& #8 ")& 5&$!&6 * ") +188 ! &'"
&!1, "&+6 !#'("#'&("#",? +1!) 22&$- $" ")& ")&' '&9" H&'&,$-
&++ #'+ #, T1$,"&, &++ #'+ #8 ")& 5&$!&6 *) !) +)$-- 8 ,+")$22&'6
$'("# $@ (&")& ,(&, #8 $'(2$? +1!) #+"+ $+ +)$-- @& $*$,(&(
@? ")& R1+" !&+ $" +1!) T1$,"&, &++ #'+ #, $'? (>#1,'%&'"
")&,&#8 $'(+1!) R1+" !&+6 12#')&$, '. $'(8 '$--? (&"&,% ' '.
+1!) $""&, #8 22&$-6 +)$-- $'(%$?6 $!!#,('."# ")& , 3 +!,&" #'6
$*$,(+1!) #+"+ "# ")& 5$,"? $22&$- '. #, $22&$-&($.$ '+" $+ ")&?
+)$-- ") ': 2,#2&, $'(")& , 3&"&,% '$" #' #, !#'!&, '. ")&
5,&% +&+ +)$-- @& !#'!-1+ 4& $'(@ '('. #' $-- 5$," &+ "# $-- '"&'"+
$'(51,2#+&+ *)$"+#&4&,

CCD27E
242 #E3 =23D
3 'OD EIO5DH3
3 'E2OD =I7DE
2E CCD27E
242 #E3 + /
=23DE!

< 5,#4 (&($-+#6 $'(@& " 81,")&, &'$!"&( )$" 8 $'?
5&,+#' #, 5&,+#'+ +)$-- 8 '() %+&-86)&,+&-86 #, ")&%+&-4&+ $.., &4&(
@? $'? $"& %$(& @? ")& 4&,+&&,+ #8 ")& 5##, 8#, ")& 51,2#+&+
#8 ") + !"6)&6 +)&6 $'(")&? %$? $22&$- "# $'? H&'&,$- #,
T1$,"&,-? &++ #'+ #8 ")& 5&$!& "# @&)&-(' $'(8#, ")& #1'"?6
"?6 ('.6 #,#1.)6 #*'6),&6 3 4 + #'6 @&,"?6 #, 5-$!&
' *) !) ")& 5$, +) +)$-- @& + "1$"&($'($-- +1!) 22&$-+ +)$--
@& +1@>&!" "# ")& +$%& 1-&+6 &.1-$" #'+6 5,#4 + #'+6 $'(3 ,&!N
"#'+6 $'(+)$-- @& 2,#+&!1"&($'(2,#!&&(&(* ") ' ")& - :& $''&,6
$+ 22&$-+ $.$ '+" $"&+ >$$(& 8#, ")& &- &8 #8 ")& 5##, +1!)
5$, +)

+72 #3 .:# 3
3 '/DH FD/ #
2#6 H3 #
2.3D/ D#GD/
.:EI.. H D#3
OD#GE

< 5,#4 (&($-+#6 $'(@& "81,")&, &'$!"&(6)$" '# 5-$ '" 88
#, 5-$ '" 88+ +)$-- ,&!#4&, ' $'? !"#' #, !"#'+ 8#, $'? ,,&.1N
-$, "?6 ,&+2$++6 #, #")&, 5,#!&&('.+ %$(& #, !#%% ""&(' &9&!1N
"#' #8 ") + ! 8 &'(&, #8 +188 ! &'" %&'(+ +)$-- @& %$(& @?
#, #' @&)$-8 #8 ")& 5$,"? #, 5$," &+ *)# +)$--)$4& !#%% ""&(
$'? +1!) ,,&.1-$, "?6 ,&+2$++6 #, *,#'.81- 5,#!&&('.+ @&8#,&
+1!) !"#' @,#1.)" $'(' !$+& '# &'(&, +)$--)$4& @&&' %$(&6
" +)$-- @& -$*81- 8#, ")& 3&8&'($'" #, 3&8&'($'"+ ' $'? +1!)
!"#'6 @? &$4& #8 ")& #1," *)&,& +1!) !"#' +)$-- (&2&'(6 $"
$'? %& @&8#,& ++1& > # '&(6 "# 2$? '"# #1," +1!) 1% #8 #'&?
$+)& #, ")&? +)$-- ") ': 8 "6 *)&,&12#' +1!) 5,#!&&('.+6 ,(&,6 $'(
(>1(!$" #' +)$-- @& %$(&)$(6 $'(.4& ' $'(@? +1!) #1,"
$+ #")&, !"#' *)&,& ")& 3&8&'($'" + $--#*&("# 2$? #'&?
>'"# #1,"

'(@& "81,")&, &'$!"&( )$" '# !"#' #, 1 " +)$--
@& !#%%&'!&($.$ '+" $'? 5&,+#' #, 5&,+#'+ 8#, $'? ") '. ' ('#
21,+1$'!& #8 #, 1'(&, ")& 1")#, "? #8 #, !#-1, #8 ") + ! 1'"-
*&'"?B#'& 3$?+ #" !&)$+ @&&' . 4&' ")&,&#8 ' =E, "'. "# ")&
+$('+2&!"#,+6 '#, $8"&, +188 ! &'" $" +8$!"#' #, &'(&, ")&,&#8
)$+ @&&' %$(& "# ")& 5$,"? #, 5$," &+6 $.., &4&(6 '#, $8"&, 9
$-&'($, #'")+ '&9" $8"&, ")& $!" !#%% ""&(8#, *) !) +1!)
!"#' #, !"#'+6 1 #, 1 "+6 +)$-- @& +# @,#1.)" $'(&4&,? +1!)
!"#' +)$-- @& @,#1.)"6 -$ (6 $'(", &(*)&,& ")& $1+& #8 !"#'
+)$--)$4& $, +&'6 $'('# " $'?#")&, #1'"? #, 5-$!& $'(")&
3&8&'($'" #, 3&8&'($'"+ ' +1!) !"#' #, 1 "+ %$? 2-&$(")&
H&'&,$- ++1&6 #, . 4& ") + $'(")& +2&!$- %$""&, ' 4 (&'!&6
$" $'? , $- #, $-+ *) !) +)$-- @&)$(")&,&12#' $'(8 ")&
)""&,

$""&,'#,') '.'+)$--' $22&$,' "#')$4&' @&&'' (#'&' 1'(&,'#,'@?' 4 ,"1&'
#8' ") +' !"6' #,' 8' " +)$--' $22&$,' ")$" +1!)' !"#'' #,' 1" *$+'
@,#1.)" @&8#,&' *&'"?B#'&' 3$?+' #" !&' ")&,&#8' *$+' . 4&'' $+' $8#,&N
+$ (6' #,' 8' $'?' !"#'' #,' 1" +)$--' '#" @&' !#%%&'!&(' * ") '' ")&'
%&' @&8#,&' - % "&(6' #,' +)$--' @&' -$ (' '' $'?'#")&,' #1'"?'#,' 5-$!&'
")$'' $+' $8#,&+$ (6' ")&'' ")&' R1,?'#,' R1, &+' +)$--' 8 '(' $' <&,(!"8#,' ")&'
3&8&'($'"#,' 3&8&'($'"+' ")&,& '' ' $'(' 8'$' <&,(!"#,' <&,(!"+' +)$--'
@&' 8#1'(' 8#,' $'?' +1!)' 3&8&'($'" #,' 3&8&'($'"+6' #,' 8' ")&' 5-$ '" 88'
#,' 5-$ '" 88+' '' +1!)' !"#'' #,' !"#'+6' 1" #,' 1"+6' +)$--' @&!#%&'
#'+1 "6' #,' +188&,' $' 3 +!#'" '1$'!&' #8' +1!)' !"#'' #,' !"#'+6' #,' 86'
12#'' $'?' 3&%1,,&,' #,' 3&%1,,&,+' '' +1!)' !"#'' #,' !"#'+6' R1(.N
%&'" +)$--' @&' . 4&'' 8#,' ")&' 3&8&'($'"#,' 3&8&'($8 "+' ")&,& '6' ")&''
$'(' '' $'?' #8' ")&' $+&+' $8#,&+$ (' +1!)' 3&8&'($'" #,' 3&8&'($'"+'
+)$--')$4&' 3#1@-&' #+"+6' $'(' +)$--')$4&' +1!)' &%&(?' 8#,' ,&!#4&, '.'
")&' +$%&' $+' $'?' 3&8&'($'" #,' 3&8&'($'"+' %$?')$4&' 8#,') +6')&,6' #,'
")& ,' #+"+' '' $'?'#")&,' $+&' @?' $*

' '(' @&' "81,")&,'&'$!"&(6')$" '#' 5,#!&&('.+' "#' @&')$(' +/ HDDG #4E'
$'(' "$:&'' '' 21,+1$'!&' #8' ") +' !" +)$--' @&' C1$+)&(' #,' 4$!$"&(' 8#,'
E$'" #8' #,%6' #,' @&' ,&%#4&(' @?' &,"#,$, ' #,' $'?'#")&,' E, " #,'
5,#!&++' *)$"+#&4&,' '"#' $'?' #8' +' $>&+"?;+' #1,"+' #8' &!#,(' $" 5#,"''
/ * ' #,' &-+&*)&,&

' '(' @&' "81,")&,'&'$!"&(')$" ")&' 5,#4 + #'+' #8") +' !"
%$?' @&' $(#2"&(' '' $'?' 5$, +)' &")&,' $+' "#' - .)" '.' #,' $+' "#' *$"!) '.6' 5$88+7#8= !"'
#,' $+' "#' - .)" '.' $'(' *$"!) '.6' $+' %$?' @&' (&&%&(' &92&(&'"' $'('
")$" ")&' 5,#4 + #'+' #8") +' !" %$?' @&' $(#2"&(' '' $'?' 5$, +)' +#' 8$,'
$+' ")&' +$%&' ,&-$"&' "#' - .)" '.6' $-")#1.)' +1!)' 5$, +)' +)$--' @&' *$"!)&('
1'(&,' #,' @?' 4 ,"1&' #8' $'?' !" #8' 5$,- $%&'" 2$++&(' 8#,' ")$" 51,2#+&6'
$'(' %$?' @&' $(#2"&(' '' $'?' 5$, +)' +#' 8$,' $+' ")&' +$%&' ,&-$"&' "#'
*$"!) '.6' $-")#1.)' +1!)' 5$, +)' +)$--' @&' - .)"&(' 1'(&,' #,' @?' 4 ,"1&'
#8' $'?' !" #8' 5$,- $%&'" 2$++&(' 8#,' ")$" 51,2#+&

' '(' @&' "81,")&,'&'$!"&(')$" '#") '.' '' ") +' !" !#'B' 0 3 #4' 3"D'
"$ '&(' +)$--' @&' !#'+",1&(' "#' &9"&'(' "#' $@, (.&6' ,&2&$-6' $-"&,6' $%&'(' + ZD/E' .'
#,' '"&,8&,&' * ")' ")&' 5#*&,+' $'(' 5,#4 + #'+' !#'"$ '&(' '' $'' !"
%$(&' $'(' 2$++&(' '' ")&' &'")' &$,' #8' ")&' & .'' #8' +' -$"&' $N
>&+"?' D '.' ' ")&' #1,")6' '"1-&(' ' ' ' * # ' ' 7' 'H '
> ' ' ' ' ' ' #,' "#' &9"&'(' "#' $'?' 5$, +)' #,' 5-$!&'
$-,&$(?' ,&.1-$"&(' @?' #,' 1'(&,' ")&' 5,#4 + #'+' #8' $'?' !" #8' 5$,- $N
%&'" 8#,' $--' ")&' 51,2#+&+')&,& 'B@&8#,&' 2,#4 (&(' 8#,6' #,' "#' '"&,8&,&'
* ")' ")&' 5#*&,+' *) !)' $'?' #,2#,$"&' #(?' %$?')$4&' * ")' ,&+2&!"
"#' *$"!) '.' $'(' - .)" '.

' '(' @&' "81,")&,'&'$!"&(')$" " +)$--' $'(' %$?' @&' +2/3E' .'
-$*81-' "#' $'(' 8#,' ")&' ')$@ "$'"+' #8' 5$," #8' $'?' 5$, +)' "#')#-(' $' %/ E"DE' 026'
&&" '.' #8' ")&' ')$@ "$'"+' #8' +1!)' 5$,"6' "#' @&' !#'4&'&(' '' %$''&,' C/ % #E' .'
)&,& '' (,&!"&(6' $'(' "#' @&' !#%2#+&(' #8' +1!)' ')$@ "$'"+' #'-?6' 8#,' ")$!"'
")&' 51,2#+&' #8' (&"&,% '.' *)&")&,' ")&' 5,#4 + #'+' '' ") +' !"
!#'"$ '&(6' #,' $'?' #8' ")&%6' +)$--' @&' $(#2"&(' $'(' !$,, &(' ' &9&!1N
"#'' '' +1!)' 5$," #8' ")&' +$ (' 5$, +)' $'(' ")$" $--' +1!)' &&" '.+'
+)$--' @&' +1@>&!" $'(' - $@-&' "#' $--' ")&' -$1+&+6' &.1-$"#'+6' $'('
&+", !"#'+' '' ") +' !" !#'"$ '&(' '' ,&+2&!" #8' &&" '.+' "#' @&'
' 5' !#'4&'&(

!#'4&'&(' 8#,' ")&' 51,2#+&+' ")&,&#8' $'(' ")$"' ")&')1,!)*$,(&'+' #8'
")&' +$ (' 5$, +)' +)$--' $!"' '' ")&' +$%&' $''&,' 8#,' +1!)' 5$,"' #8' ")&'
5$, +)' ")&' '-$@ "$'"+' #8' *) !)' %$?' @&' (&+ ,#1+' #8' $(#2" '.' ")&'
5,#4 + #'+' #8' ") +' !"6' 8#,' !$,,? '.' ")&' 5,#4 + #'+' #8' ")&' +$%&' '"#'
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ʾ '(ʾ@&ʾ "ʾ 81,")&,ʾ&'$!"&(6ʾ)$"ʾ ")&ʾ)&, 88ʾ+)$--ʾ '#"6ʾ ʾ $'+*&,ʾ "#ʾ $'? E , ʾ #8ʾ <&' ,&ʾ 8$! $+6ʾ #,ʾ 5,&!&2"ʾ 8#,ʾ ")&ʾ &"1,ʾ #8ʾ R1,#,+6ʾ ,&"1,ʾ ")&ʾ $%&+ʾ #8ʾ $'?ʾ 5&,+#'+ʾ '#"ʾ !#'"$ '&(ʾ ʾ ")&ʾ R1,#,+ʾ ##:ʾ 8#,ʾ ")&ʾ ")&ʾ !1,,&'ʾ &$,ʾ ʾ $'(ʾ ")$"ʾ *)&,&ʾ 5,#!&++ʾ 8#,ʾ ,&"1,' ' .ʾ $ʾ R1,?ʾ 8#,ʾ ")&ʾ , $-ʾ #8ʾ $'?ʾ #8ʾ ")&ʾ ++1&+ʾ $8#,&+$ (ʾ +)$--ʾ @&ʾ (,&!"&(ʾ "#ʾ $'?ʾ #,#'&,6ʾ - +#,6ʾ #,ʾ #")&,ʾ ' +"&,6ʾ)&ʾ +)$--ʾ)$4&ʾ 8,&&ʾ !!&++ʾ "#ʾ ")&ʾ R1,#,+ʾ ##:ʾ 8#,ʾ ")&ʾ !1,,&'ʾ &$,6ʾ $'(ʾ +)$--ʾ '#"ʾ ,&"1,ʾ ")&ʾ $%&+ʾ #8ʾ $'?ʾ 5&,+#'+ʾ '#"ʾ !#'"$ '&(ʾ ʾ ")&ʾ +$ (ʾ ##:] 5,#4 (&(ʾ $-*$?+6ʾ ")$"ʾ 8ʾ ")&,&ʾ +)$--ʾ @&ʾ '#ʾ R1,#,+ʾ ##:ʾ ʾ &9 +"&'!&ʾ 8#,ʾ ")&ʾ !1,,&'ʾ &$,6ʾ ʾ +)$--ʾ @&ʾ -$*81-ʾ "#ʾ ,&"1,ʾ R1,#,+ʾ 8,#%6ʾ ")&ʾ R1,#,+ʾ ##:ʾ 8#,ʾ ")&ʾ &$,ʾ 2,&!&(' .ʾ $'(ʾ ")$"ʾ 8ʾ ʾ +)$--ʾ)$22&ʾ ")$"ʾ $'?ʾ 5&,+#'ʾ '#"ʾ ʾ ")&ʾ R1,#,+ʾ ##:ʾ +)$--ʾ @&ʾ ,&"1,'&(6ʾ $'(ʾ $'? , $-ʾ +)$--ʾ 2,#!&&(6ʾ $'(ʾ <&,N (!"ʾ @&ʾ 8#1'(6ʾ * ")#1"ʾ $'?ʾ @>&!"#ʾ "#ʾ $'?ʾ +1!-ʾ 5&,+#ʾ $+ʾ $ʾ R1,#,6ʾ +1!)ʾ , $-ʾ +)$--ʾ '#"ʾ @&ʾ (&&%&(ʾ $ʾ +Bʾ, $-6ʾ '#,ʾ +)$--ʾ ")&ʾ <&,(!"ʾ ")&,&#ʾ @&ʾ %2&$!)&(ʾ 7 ʾC1&+"#'&(ʾ#ʾ $!!#1'"ʾ#8ʾ")&ʾ &"1,ʾ #8ʾ+1!)ʾ R1,#,ʾ 2,#4 (&(ʾ ")$"ʾ '2") '.ʾ)&,&ʾ !#'"$ '&(ʾ +)$--ʾ @&ʾ !#'+",1&(ʾ "#ʾ 2,&4&'ʾ $'?ʾ)&, 88ʾ#,ʾ #")&,ʾ &"1,' '.ʾ 88 !&,6ʾ %$: '.ʾ &"1,'+ʾ "#ʾ $'? E , ʾ #8ʾ <&' ,&ʾ #,ʾ 5,&!&2"6ʾ 8,#%6ʾ &9&,! + '.ʾ) +ʾ 3 +!,&"#ʾ 8,$% '.ʾ ")&ʾ 5$'&-ʾ $''&9&(ʾ "#ʾ 1!)ʾ &"1,'+ʾ +1!)ʾ $''&,ʾ $+ʾ)&ʾ +ʾ '#*ʾ@?ʾ $*ʾ (,&!"&(ʾ "#ʾ (#6ʾ +$4&ʾ #'-?ʾ +#ʾ 8$,ʾ $+ʾ "#ʾ 2,&4&'ʾ ")&ʾ '+&,"#ʾ ʾ +1!)ʾ 5$'&-ʾ B#8ʾ $'?ʾ $%&+ʾ '#"ʾ !#'"$ '&(ʾ ʾ ")&ʾ +$ (ʾ R1,#,+ʾ ##:

"D/ ..fʾ Hʾ
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ʾ '(ʾ @&ʾ "ʾ 81,")&,ʾ &'$!"&(ʾ)$"ʾ &4&,?ʾ)&, 88ʾ #,ʾ #")&,ʾ ' +"&,ʾ "#ʾ *)#%6ʾ ")&ʾ &"1,ʾ #8ʾ R1, &+ʾ 8#,ʾ ")&ʾ , $-ʾ #8ʾ ++1&+ʾ @&8#,&ʾ $'?ʾ #1,"ʾ #8ʾ ++ L&ʾ #,ʾ +ʾ 5, 1+ʾ ʾ $'?ʾ #1'"?6ʾ "?6ʾ #,ʾ #*ʾ #8ʾ ʾ %$?ʾ@&-#'.6ʾ +)$--6ʾ 12#"ʾ @ +ʾ &"1,ʾ #8ʾ &4&,?ʾ+1!)ʾ E "#8ʾ <&' ,&ʾ 8$! $+6ʾ X1'-&++ʾ ʾ $1+&+ʾ '"&'(&(ʾ "#ʾ @&ʾ", &(ʾ $"ʾ $,6ʾ #,ʾ ʾ $+&+ʾ *)&,&ʾ $ʾ 2&! $-ʾ R1,?ʾ +)$--ʾ @&ʾ +",1!:ʾ @?ʾ ,(&,ʾ #,ʾ 1-&ʾ #8ʾ #1,"6[$''&9ʾ $ʾ 5$'&-ʾ "#ʾ ")&ʾ +$ (ʾ E , "6ʾ !#'"$ ' '.ʾ ")&ʾ $%&+6ʾ "#.&")&,ʾ * ")ʾ ")&ʾ 5-$!&+ʾ #8ʾ)#!-&ʾ $'(ʾ (("#'+6ʾ #8ʾ $ʾ !#%2&"&'"ʾ 1%@&,ʾ #8ʾ R1,#,+ʾ '$%&(ʾ ")&ʾ R1,#,+ʾ ##: ʾ $'(ʾ ")$"ʾ ")&ʾ $%&+ʾ #8ʾ ")&ʾ +$%&ʾ R1,#,+ʾ +)$--ʾ @&ʾ '+&,"&(ʾ ʾ ")&ʾ 5$'&-ʾ $''&9&(ʾ "#ʾ &4&,?ʾ <&' ,&ʾ 8$! $+ʾ 8#,ʾ ")&ʾ , $-ʾ #8ʾ $--ʾ ++1&+ʾ $"ʾ ")&ʾ +$%&ʾ ++ L&+ʾ #,ʾ &++#'+ʾ #8ʾ +ʾ 5, 1+ʾ ʾ +1!)ʾ #1'"?6ʾ "?6ʾ #,ʾ #*'6ʾ *) !)ʾ 1%@&,ʾ #8ʾ R1,#,+ʾ +)$--ʾ '#"ʾ @&ʾ -&++ʾ ")$'ʾ) ,"?B+ 9ʾ '#,ʾ %#,&ʾ ")$ʾ 9"?6ʾ 1'-&++ʾ @?ʾ ")&ʾ 3 ,&!"#ʾ #8ʾ ")&ʾ R1(.&+ʾ $22#'"&(ʾ "#ʾ)#-(ʾ ")&ʾ ++ L&+ʾ #,ʾ &++#'+ʾ #8ʾ +ʾ 5, 1+ʾ ")&ʾ +$%&ʾ #1'"?6ʾ "?6ʾ #,ʾ #*'6ʾ #,ʾ '&ʾ #8ʾ ")&%6ʾ *)#ʾ $,&ʾ $'(ʾ +ʾ)&,&@?ʾ &%2#*&,&(6ʾ @?ʾ ,(&,ʾ 1'(&,ʾ ")&,ʾ #,ʾ)+ʾ $'(+ʾ #,ʾ $'(6ʾ "#ʾ (,&!"ʾ $ ..$$"&,ʾ #,ʾ -&++&,ʾ 1%@&,6ʾ $'(ʾ ")&ʾ+1!)ʾ 1%@&,ʾ $+ʾ +)$--ʾ @&ʾ +#ʾ (,&2"&(ʾ +)$--ʾ @&ʾ ")&ʾ 1%@&,ʾ "#ʾ @&ʾ ,&"1,'&(ʾ +)$--ʾ @&ʾ &ʾ 2&"&'"#ʾ ",?ʾ $--ʾ ")&ʾ ++1&+ʾ $"ʾ ")&ʾ ++ L&+ʾ #,ʾ &++#'+ʾ #8ʾ +ʾ 5, 1+ʾ $'(ʾ ")$"ʾ ʾ ")&ʾ E ,ʾ #8ʾ $@&$+ʾ !#,2#,$ʾ >1,$"#,1%ʾ #,ʾ 3 +", '.$+ʾ +1@+&C1&'"ʾ "#ʾ +1!)ʾ E , "#8ʾ <&' ,&ʾ 8$! $+ʾ +)$--ʾ '#"ʾ @&ʾ ,&C1 +"&ʾ "#ʾ '+&,"&(ʾ $%&+ʾ #8ʾ $--ʾ ")&ʾ R1,#,+ʾ !#'"$ '&(ʾ ʾ +1!)ʾ 5$'&-6ʾ @1"ʾ +)$--ʾ @&ʾ +188 ! &'"ʾ "#ʾ '+&,ʾ ʾ ")&ʾ %$'($"#,?ʾ 5$,"+ʾ #8ʾ +1!)ʾ E , "+ʾ ,&+2&!" 4&-?6ʾ \ʾ)&ʾ #(&+ʾ #8ʾ ")&ʾ +&4&,$-ʾ 5&,+#'+ʾ ʾ ")&ʾ 5$'&-ʾ "#ʾ ") +ʾ E , ʾ $''&9&(ʾ '$%&(6^ʾ #,ʾ E#,(+ʾ #8ʾ ")&ʾ - :&ʾ %2#,"6ʾ $'(ʾ "#ʾ $''&9ʾ "#ʾ +1!)ʾ E , "+ ,&+2&!" 4&-?

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,&+2&!" 4&-?' 5$'&-+' !#'"$ ' '.' ")&' +$%&' $%&+' $+' *&,&' ,&"1,'&(' '' ")&' 5$'&-' "#' +1!)' <&' ,&' 8$! $+6' * ")' ")&,' 5-$!&+' #8' @#(&' $'(' (("#'+' $'(' ")$"' 8#,' %$: '.' ")&' &"1,'+' $'(' 5$'&-+' $8#,&+$ (6' $'(' $''&9 '.' ")&' +$%&' "#' ")&' ,&+2&!" 4&' E, "+6' ")&' -&.$-' &&6' $'(' '#' #")&,6' +)$--' @&' "$:&'' $'(' ")$"' ")&' &"' '$%&(' '' +1!)' 5$'&-+6' $'(' '#' #")&,+6' +)$--' @&' +1%%#'&(' "#' +&,4&' #'' R1, &+' $"' ")&' ")&'' '&9" #1," #8' ++ L&+' #,' &++ #'' #8' +' 5, 1+' 8#,' ")&' ,&+2&!" 4&' #1'" &+6 " &+6' $'(' #*'+' '$%&(' '' +1!)' E, "+

' '(' @&' "81,")&,'&'$!"&(')$"' 8'$'?' 5-$ '" 88'#,' 3&%$'($'.' +72 #3 7A' '' $'?' $1+&' *) !)' +)$--' @&' $"' ++1&' ''$'?' #8' +' $>&+"?;+' #1,"+' #8' &!#,(' $"' ' " ' #,' $'?' 3&8&'($'"' '' $'?' !"#'' #8' T1$,&' %2&(' #,' &2-&4 '' *) !)' +)$--' @&' +#' $"' ++1&6' +)$--' +1&' #1"' $'?' E, "#8' <&' ,&' 8$! $+' 12#'' *) !)' $'?' E, "#8' $@&$+' !#,2#,$' #,' 3 +", '.$+' * ")'$' +' 2, 1+' +)$--' ++1&6' '#,(&,'"#")&' , $-' #8'")&' +$ (' K ++1&' $"")&' ++ L&+' #,' &++ #'+' #8' +' 5, 1+' ''$'?' #1'"?6' "?6' #,' #*'6' $'('+)$--' '#' 2,#!&&('"#' , $-' $"")&' 8 ,+' ++ L&+' #,' &++ #'+' #8' +' 5, 1+' 8#,'+1!)' #1'"?6' "?6' #,' #*'' $8"&,'")&' &+"&' #8' +1!)' E, "#8' $@&$+' !#,2#,$' #,' 3 +", '.$+6' ")&'' $'(' '' &4&,?' +1!)' $+&' X&9!&2" *)&'' $' < &*' @?' R1,#,+' +)$--' @&' (,&!"&(' $+')&,&' B$8"&,' %&'N "#'&([' +1!)' 5-$ '" 886' 3&%$'($'"6' #,' 3&8&'($'"6' *)&'+#&4&,')&' #,' +)&' +)$--' ") ':' 8' "#' ",?' ")&' +$ (' ++1&' $"' $'?' #")&,' ++ L&+' #,' &++ #'+' #8' +' 5, 1+' 8#,'+1!)' #1'"?6' "?6' #,' #*'6' +)$--' +1&' 8#,")' $' '&*' E, "#8' <&' ,&' 8$! $+6' !#%%$'('.' ")&')&, 88' "#' ,&"1,'' $'&*' *&-4&' .##(' $'(' -$*81-' &'' #8' ")&' #(?' #8') +' #1'"?6' C1$- 8 &(' $!!#,('.' "#' $*6' $'(' ")&' ,&+" #8' ")&' E, "+)$--' 2,#!&&(' '' ")&' $!!1+"#%&(' $''&,' *) !)' E, "@&' '.' (1-?' ,&"1,'&(6' $' E, "#8' $@&$+' !#,2#,$' #,' 3 +", '.$+' * ")' $' +' 2, 1+' +)$--' ++1&' ")&,&N 12#'6' X8#,' *) !)' ")&' +$%&' &&+' +)$--' @&' 2$ (' $+' '' ")&' $+&' #8' ")&' 5-1, &+6' $@&$+' !#,2#,$' #,' 3 +", '.$+' * ")' $' +' 2, 1+6[' 12#'' *) !)' +1!)' 5-$ '" 886' 3&%$'($'"6' #,' 3&8&'($'"' +)$--' $'(' %$?' 2,#N !&&(' "#' , $-' $+' -$*81--?' $'(' &88&!"1$--?' "#' $--' '"&'"+' $'(' 51,2#+&+' $+' 8' '#' 8#,%&,' E, "#8' <&' ,&' 8$! $+')$(' @&&'' 2,#+&!1"&(' '' ")$"' $1+&6' $'(' +#' '7' $+' ")&' $+&' +)$--' ,&C1 ,&' $'(' 8' $'?' 3&8&'($'"' #,' &'$"' '' $'?' !"#'' (&2&'(' '.' '' $'?' #8' ")&' +$ (' #1,"+' +)$--' @&' % '(&(' "#' @, '.' "#' , $-6' '' $'?' #1'"?6' "?6' #,' #*'6' $'?' ++1&' >#' '&(' $.$ '+') %6' *)&,&' @?' ")&' 5,$!" !&' #8' ")&' #1,")&' %$?' (#' ")&' +$%&6' @?' 5,#4 +#6')&' +)$--' #,' %$?6' #8' ")&' ++1$@-&' &,%' '&9" 2,&!&(' '.' +1!)' '"&'(&(' , $-' $"' "#' @&')$(' $"' ")&' '&9" ++ L&+' #,' &++ #'+' #8' +' 5, 1+' +1!)' #1'"?6' "?6' #,' #*'6' +1&' #1"' $' '&*' <&' ,&' 8$! $+' "#' ")&')&, 88' #,' #")&,' 88 !&,')$4 '.' ")&' &"1,'' #8'+1!)' 5,#!&++6' ")&' #,%' $8#,&+$ (6' @?' 5,#4 +#6' $'(' 2,#+&!1"&' ")&' +$%&' @?' E, "#8' $@&$+' !#,2#,$' #,' 3 +", '.$+' * ")' $' +' 2, 1+6' $+' -$*81--?' $'(' &88&!"1$--?' "#' $--' '"&'"+' $'(' 51,2#+&+' $+' 8' '#' 8#,%&,' E, "#8' <&' ,&' 8$! $+')$(' @&&'' +1&(' #1"' #,' ,&"1,'&(' '' ")$"' $1+&6' $'(' +#' '7*' $+' ")&' $""&,' +)$--' ,&C1 ,&

< ' '(' @&' "81,")&,'&'$!"&(')$"' ")&')&, 88' #,' #")&,' +"&,' (C6' .'3"D' "#' *)#%' ")&' &"1,'' #8' R1,#,+' 8#,' ")&' , $-' #8' $1+&' '' $'?' #1'"?6' "?6' #,' #*'' '' %$?' @&-#'.6' +)$--' !$1+&' "#' @&' %$(&' #1"' $' +"' #8' ")&' $%&+' #8' $--' ")&' R1,#,+' !#'"$ '&(' '' ")&' 5$'&-+' "#' ")&' +&4&,$-' E, "+' #8' <&' ,&' 8$! $+' $'' &9&(' $+' $8#,&+$ (

*D.D#G2#3' O26' G '3"D' +72 #3 7A' EID'. /3"' 2' D# /D!' H' #' /GD/' 3 ' / 27!' 2#G' C/ HDDG' # 3!' "D' O26' 2.3D/ ' Z2/GE' EID' . /3"' 2# 3"D/' D# /D!' H' 2#G' 3/6' 3' 23' 2#6' EIOED^ \ ID#3' E^ E dDE

(C6' .'3"D' 3 'OD' . HD!' . /' 3"D' #ECDH3 #' . NF 3O' 37FD' +2/3 DE

* ") ")& , ,&+2&!" 4& 5-$!&+ #8 @#(& $'((("#'+ $'(&4&,? +1!)
)&, 88 #, #")&, ' +"&, +)$-- :&&2 +1!) +" ' ")& 88 !& #8) +
V'(&,)&, 88 #, 3&21"? 8#, &4&' 3$?+ $" -&$+" @&8#,& ")& "" ' .
#8 ")& '&9" #1," #8 ++ L& #, + 5, 1+ $'(")& 5$," &+ ' $--
$1+&+ "# @& ", &($" $'? +1!) #1," #8 ++ L& #, + 5, 1+6 $'(
")& , ,&+2&!" 4& ""#,' &+6 +)$--6 #' 3&%$'(6)$4& 81-- @&,"? "#
'+2&!" +1!) +"+6 "4 "- #1" $'? && #, &*$,("# @& 2$ (8#,
'+2&!" #'

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"D/D3 . /D

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)$" '#") ' .)&,& ' !#'"$ '&(+)$-- @& !#'+",1&("# 2,&4&'" ")&
#1," #8 D ' .;+ &'!)6 #, $'? #1," #8 ?&, $'(&,% '&,6 H$#-
3&- 4&,?6 #, #1," #8 &++ #'+ #8 ")& 5&$!&6 8,#% ,&+2&!" 4&-?)$4 ' .
$'(&9&,! + ' . ")& +$%& 5#*&, $'(1")#, "? $+ ")&? %$? '#*)$4&
$'(&9&,! +&6 ' ++1 ' . $'? E, " #, 5,&!&2"6 #, ' %$: ' . $'?
$,(#, ,(&,6 #,$--? #, #")&, +&6 8#, ")& &"1,' #8 $ R1,? 8#,
")& , $- #8 $'? ++1& @&8#,& $'? #8 +1!) #1,"+ ,&+2&!" 4&-?6 #, 8#,
")& $%&'(' . #, &'-$,. ' . ")& 5$'&- #8 R1,#,+ ,&"1,'&(8#, ")& , $-
#8 $'? +1!) ++1& $'(")& &"1,' "# &4&,? +1!) E, "6 5,&!&2"6
*$,(6 #, ,(&,6 $'(")& 5,#!&&(' . + ")&,&#'6 +)$-- @& %$(& ' ")&
$''&,)&,&"#8#,& V+&($'($!!1+"#%&(' +1!) #1,"+ ,&+2&!N
" 4&-? +$4& $'(&9!&2" ")$" ")& R1,#,+ +)$-- @& ,&"1,'&(8,#% ")&
#(? #8 ")& #1'"?6 $'('#" 8,#% $'? 2$," !1-$, <&'1& * ") ' ")&
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/GD/ ECDH 27
BD/ 3E . D^
/D .2H 2E
* E3/ #42E
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< '(@& " 81,")&, &'$!"&( )$" *)&,& ' $'? $+&6 & ")&,
! 4- #, !, % '$-6 #, #' $'? 2&'$- "$"1"& (&2&'(' . ' $'? #8 ")&
+$ (#1,"+ #8 &!#,(' > "< " +)$-- $22&$, "# $'? #8 ")& ,&+2&!N
"4& #1,"+6 #, "# $'? R1(.& ")&,&#8 ' <$!$" #'6 ")$" " * -- @&
2,#2&, $'('&!&++$,? ")$" ")& R1,#,+ #, +#%& #8 ")& R1,#,+ *)# $,&
"# ",? ")& ++1& ' +1!) $.& +)#1-( )$4& ")& < &* #8 ")& 5-$!& '
C1&+" #'6 ' #,(&, "# ")& , @&""&, 1'(&,+"$'(' . ")& 4 (&'!& ")$"
%$? @& . 4&' 12#' ")& , $- #8 +1!) ++1&+6 ' &4&,? +1!) $+& +1!)
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(,$* ' 12 !#'"$ ' ' . ")& 1+1$- &,%+6 $'($-+# ,&C1 , ' .6 8 +1!)
#1," #, R1(.& +)$-- +# ") ' : 8 "6 ")& 5$,"? $22-? ' . 8#, ")& < &* "#
(&2#+ " ' ")& $'(+ #8 ")& V'(&,)&, 88 $ 1% #8 #'&? "# @&
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!#%%$'(' . +2&! $- E, "+ #8 <&' ,& 8$! $+ 3 +", ' .$+6 #, $@&$+
!#,2#,$ "# ++1&6 @? *) !) ")&)&, 88 #, #")&, ' +"&, "# *)#%6 ")&
+$ (E, "+ +)$-- @& (,&!"&(+)$-- @& !#%%$'(&("#)$4& 9 #, %#,&
#8 ")& R1,#,+ '$%&(' +1!) E, "6 #, ' ")& 5$'&-+ ")&,&1'"#
$''&9&(6 X*)# +)$-- @& %1"1$--? !#'+&'"&("# @? ")& 5$,"&+6 #,6 8
")&? !$''#" $.,&&6 +)$-- @& '#% '$"&(@? ")& 2,#2&, 88 !&, #8 ")&
,&+2&!" 4& #1,"+ #8 D ' .;+ &'!)6 #%%#' 5-&$+6 #, 9!)&C1&,6 $"
' " 8#, ")& $1+&+ ' ")& , ,&+2&!" 4& #1,"+6 [$" ")& 5-$!& '
C1&+" #'6 +#%& !#'4&' &'" %& @&8#,& "- & , $-6 *)# ")& ' $'(")&,&
+)$--)$4& ")& 5-$!& ' C1&+" #' +)&* ' "# ")&%6 @? *# 5&,+#'+ '
")& +$ (E, "+ '$%&(6 "# @& $22# '"&(@? ")& #1," #, R1(.& $'(
")& +$ ( )&, 88 #, #")&, ' +"&, *)# + "# &9&!1"& $$? +1!) E, "
+)$--6 @? $ +2&! $- &"1,' 12#' ")& +$%& !&," 8? ")$" ")& < &*)$")
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< ' '(' @&' '' 81,")&,' &'$!"&(6)$" *)&,&' $' < &*' +)$--' @&' DZD/E!' #
$--#*&(' '' $'?' $+&6")#+&' &'' *)#' +)$--')$4&')$('")&' < &*6' #,' +1!)' H2ED' .' C'
#8'")&%' $+' +)$--' $22&$,' 12#'' ")&' R1,?' "#' ",?' ")&' ++1&6' $'(' +)$--' '#''
@&' !)$--&'.&(' #886' +)$--' @&' 8 ,+'' +*#,'' $'(' +#' %$'?' #'-?' +)$--' @&' ''>&
$((&(' "#' ")&' < &*&,+' *)#' +)$--' $22&$,' $+' + $--6' $8"&,' $--' 3&8$1-"&,+' ,I/6'. /E3!'
$'(')$--&'.&+' $--#*&(6' %$:&' 12' $' 81--' R1,?' #8' *&-4&

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' ")&' 1%%#'+' #8' &4&,?' ,I/ /E' 3 ' OD'
$'' "#' +&,4&' #'' $'?' R1,?6' #%%#'' #,' 2&! $-6' '' $'?' #8'")&' #1,"+' +1%%#'&('
$8#,&+$ (6' +)$--' @&' %$(&' @?' ")&' 2,#2&,' 88 !&,' 9' 3$?+' $''-&$+'' @&8#,&' @&8#,&73$?
")&' 3$?' #'' *) !)' ")&' R1,#,' +' "#' $'''&'(6' @?' +)#* '.' "#' ")&' $'' "#' .' 33D#G'
@&' +1%%#'&(6' #,' '' !$+&')&' +)$--' @&' $@+&''' 8,#%' ")&' 1+1$-' 5-$!&' #8' 2#HD'
) +' @#(&6' @?' -&$4 '.' *")' +#%&' 5&,+#'' ")&,&' ')$@" '.6' $' #"&6' ''
E, "'.' 1'(&,'")&' $'(' #8'")&')&, 886' 1@B)&, 886' #,' #")&,' 2,#2&,'
88 !&,6' !#'"$' '.' ")&' 1@+"$'!&' #8' +1!)' 1%%#'+

' '(' @&' '' 81,")&,' &'$!"&(')$'' ")&' $%&' #8' &$!)' $'')2ODE' .'
*)#' +)$--' @&' +1%%#'&(' $'(' %2$'&--&(' '' $'?' #1,'' #8' ++ L&' #,' ,I/ /E' 3 ' OD'
+' 5, 1+6' *")' ")&' 5-$!&' #8')+' @#(&' $'(' (("#'6' +)$--' @&' GD7 FD/DG' 3 '
*, ""&'' #'' $' (+" '!' 5 &!&' #8' 5$,!)%&''' #,' $,(6' +1!)' 5 &!&+' #8' (7D/]' .'
5$,!)%&''' #,' $,(' @& '.' $--' $+' '&$,-?' $+' %$?' @&' #8' $'' &C1$-' L&6' $'(' ,IG4D' .'
+)$--' @&' (&- 4&,&(' 1'"#' ")&' -&,:' #8' ")&' R1(.&' #8' ++ L&' #,' +' EE dD' 2#G'
5, 1+' *)#' +' "#' ",?' ")&' $1+&6' @?' ")&' V'(&,')&, 88' #8' ")&' #1'"?6' O277 73DG' . /'
"?6' #,' #*'6' #,' #")&,' 88 !&,' ,&"1,' '.' ")&' 5,#!&++6' $'(' +)$--6' @?' ,I/ DE' #'
3 ,&!"#'' $'(' $,&' #8' +1!)' -&,:6' @&' 21'' "#.&")&,' '' $' #9' "#' @&' (F7(I/3E
2,#4 (&(' 8#,'")$'' 51,2#+&' $'(' *)&'' $'?' ++1&' +)$--' @&' @,#1.)'' #''
"#' @&' ", &(6' +1!)' -&,:' +)$--' '' #2&'' #1,'' (,$*' #1'' *&-4&' #8'")&'
+$ ('5$,!)%&'"+' #,' $,(+' #'&' $8"&,' $'#")&,6' $8"&,')$4 '.' +)$:&'' ")&%'
"#.&")&,6' #,6' '' $+&+' *)&,&' $'?' < &*' +)$--')$4&' @&&'' (,&!"&(' $'('
)$(' $+' $8#,&+$ (6' +#' %$'?' $+6' "#.&")&,' *")' ")&' < &*&,+' *)#' +)$--'
$22&$,' $'(' @&' +*#,'6' +)$--' @&' +188 ! &'' "#' %$:&' 12' ")&' 1%@&,' #8'
*&-4&' $'(' 8'$'?' #8'")&' &'' *)#+&' $%&+' +)$--' @&' +#' (,$*'' +)$--'
'#'' $22&$,6' #,' +)$--' @&' !)$--&'.&(' $, (' +&'' $+ (&6' ")&'' +1!)' 81,")&,'
1%@&,' 1'"-' *&-4&' &'6' #,' +1!)' #")&,' 1%@&,' $+6' "#.&")&,' *")'
+1!)' < &*&,+' +#' $22&$, '.' $'(' +*#,'' $+' $8#,&+$ (6' +)$--' %$:&' 12' ")&'
1%@&,' #8' *&-4&6' @&' (,$*'6' *)#' +)$--' $22&$,6' $'(' *)#6' $8"&,' $--'
>1+'' $1+&+' #8')$--&'.&' $--#*&(6' +)$--' ,&%$ '' $+' 8$,' $'(' '(88&,&''
$'(")&' +$ (' *&-4&' &'6' ")&,' $%&+' @& '.' %$,:&(' '' ")&' 5$'&-6' $'('
")&?' @& '.' +*#,'6' +)$--' @&' ")&' R1,?' "#' ",?' ")&' ++1&' $'(")&' $%&+'
#8'")&' &'' +#' (,$*'' $'(' +*#,'' +)$--' @&' :&2'' 2,'' @?' ")&%+&-4&+' 1'"-'
+1!)' R1,?' +)$--')$4&' . 4&'' '' ")&' <&,(!'' $'(' ")&' +$%&' +)$--' @&'
,&!#,(&(6' #,' 1'"-' +1!)' R1,?' +)$--6' @?' ")&' #'+&''' #8'")&' 5$," &+' #,' @?'
&$4&' #8' ")&' #1,"6' @&' (+!)$,.&(6' $'(' ")&'' ")&' +$%&' $%&+' +)$--' @&'
,&"1,'&(' "#' ")&' #96' ")&,&' "#' @&' :&2'' *")' ")&' #")&,' $%&+' ,&%$ '.'
$'' ")$'' %&' 1'(,$*'6' $'(' +#' 7 $+' -#'.' $+' $'?' ++1&'
,&%$ '+' "#' @&' ", &(] B 5,#4 (&(' $-*$?+6' ")$'' 8' $'?' ++1&' +)$--' @&' @"D/D' 3"D'
@,#1.)'' #'' "#' @&' ", &(' '' $'?' #8' ")&' +$ (' #1,"+' @&8#,&' ")&' R1,?' , /6' "2FD'
'' $'?' #")&,' ++1&' +)$--')$4&' @,#1.)'' '' ")&' <&,(!'' #,' @&&'' # 3' O/ I4"3'
(+!)$,.&(6' '' +)$--' @&' -$*81-' 8#,' ")&' #1,'' "#' #,(&,' *&-4&' #8' ")&' #' 3"D /' D/^
&+ (1&' #8' ")&' +$ ('5$,!)%&'"+' #,' $,(+6' '#'' !#'"$' '.' ")&' $%&+' G H3!' ZD7FD'
#8' $'?' #8' ")&' R1,#,+' *)#' +)$--' '#'')$4&' +#' @,#1.)'' '' ")&' ,' <&,(!'' 3"D/E' 3 ' OD'
#,' @&&'' (+!)$,.&(6' "#' @&' (,$*'' '' +1!)' $''&,' $+' $8#,&+$ (' 8#,' G/2Z#
"- &' , $-' #8' ")&' ++1&' *) !)' +)$--' @&' +#' @,#1.)'' #'' "#' @&' ", &(]

(K ' a 37 B ' ' (2C

"D E2OD ,I/6! .'H #^ ED#3DG 3 !' O26 3/6 EDFD^ /27 EEIDE # IHHDEE #! Z 3" I3 OD #4 /D^ G/2Z#

5,#4 (&(' $-+#6 ")$" *)&,&' @#")' 5$,"&+' +)$--' !#'+&'" ")&,&"#' " +)$--' @&' -$*81-' 8#,' ")&' #1," "#' ",?' $'?' ++1&' * ")' ")&' +$%&' R1,?' ")$" +)$--')$?&' 2,&4 #1+-?' ", &(' 8 @&&'' (,$*'' "#' ",?' $'?' #")&,' ++1&6 * ")#1" ")&,' $%&+' @& '.' ,&"1,'&(' "#' ")&' #9 $'(',&(,$*'6 #,'"# #,(&,' ")&' $%&' #,' $%&+' #8 $'?' $'' #,' &'' #'' +1!)' R1,?' *)#%' @#")' 5$,"&+' %$?' !#'+&'" "#' * ")(,$*6 #,' *)# %$? @&' >1+"-?' !)$-N -&'.&(' #,' &9!1+&(' @?' ")&' #1,"6 "# @&' +&" $+ (&6 $'(' $'#")&,' $%& #,' #")&,' $%&+' "# @&' (,$*'' 8,#%' ")&' #96 $'(' "#' ",?' ")&' ++1&' * ")' ")&' D&+ (1&' #8' +1!)' #,.'$-' R1,?' $'(' * ")' +1!)' $'' #,' &' *)#+&' $%&' #,' $%&+' +)$--' @&' +# (,$*'6 $'(' *)# +)$--' $22&$,' $'(' @& $22,#4&(' $+' '(88&,&'"6 $'(' +# '7 ' $+ -#'.' $+ $'?' ++1& ,&%$ '+' "# @&' ", &(B

@2#3 .' YI27.H23 # # (OO # ,I/ /E 3'OD (2IED .' ("277D#4D

' ,('@&' "81,")&,'&'$!"&(')$"' 8$'?' $'' +)$--' @&' ,&"1,'&(' $+' $' R1,#,' 8#,' ")&' ,$-' #8' $'?' ++1&' '' $'?' #8' ")&' #1,"+')&,& 'B @&8#,&' %&'" #'&(6 *)# +)$--' '#" @&' C1$-8&(' $!!#,('.' "#' ") +' !"6 ")&' E$'" #8' +1!)' T1$-8 !$" #'' +)$--' @&' .##(' $1+&' #8')$--&'.&6 $'(')&' +)$--' @&' (+!)$,.&(' 12#'' +1!)')$--&'.&6 8' ")&' #1," +)$-' @&' +$" +8&(' #8' ")&' 5$!"' $'(' ")$" 8' $'?' $'' ,&"1,'&(' $+' $' R1,#,' 8#,' ")&' ,$-' #8' $'?' +1!)' ++1&' +)$--' @&' C1$-8&(' '' #")&,' ,&+2&!"+' $!!#,('.' "#' ") +' !"6 ")&' E$'" #8' ,&&)#-(' +)$--' '#" @&' $!!&2"&(' $+' .##(' $1+&' #8')$--&'.&6 & ")&,' @?' ")&' ,#*'' #,' @?' ")&' 5$,"?6 '#,' $+' $' $1+&' 8#,' (+!)$,.'.' ")&' $'' +# ,&"1,'&(' 12#'') +' #*'' 22- !$" #'6 $'?' $*6 1+"#%6 #,' V+$.&' "#' ")&' !#'",$,?' '#"*")N +"$'('.' 2,#4 (&(' ")$" '#") '.')&,& '' !#'"$ '&(' +)$--' &9"&'(' '' $'?* +&' "#' $'?' 2&! $-' R1,#,

) 3 3 'D&^ 3D#G 3 ' CD^ H 27 ,I/ /E

' '('@&' "81,")&8 &'$!"&(')$"' '#')$--&'.&' +)$--' @&' "$:&'' "#' $'?' 5$'&-' #8' R1,#%' 8#,' *$'" #8 $' D' .)";+' @& '.' ,&"1,'&(' '' +1!)' 5$'&-6 '#,' $'?' ,,$? C1$+)&(' @?' ,&$+#'' #8 $,? +1!)')$--&'.&' ' $'? $*6 1+"#%6 #,' V+$.&' "#' ")&' !#'",$,?' '#"*")+"$'('.

H3 # 3 3 ' 2..DH3 /E" H3E!' '>Q' J' N OP ,Q' 2E 3 '(#' E2#4I #36'

6 5,#4 (&('$-*$?+6 $'(' @&' "&'$!"&(6)$"' '#") '.' '") +' !" !#'"$ '&(' +)$--' '' $'?* +&' @& !#'+",1&(' #,' (&&%&(' "#' ,&2&$-6 $-"&, 2>6 %$(&' '' ")&' ,+' &++#'' #8 ")&'),"?B") ,(' &$, #8 ")&' & .'' #8' +' -$"&' $>&+"? D '.') ")&' .)")6 '" "1-&(' 1 ' #,'$'' !" %$(&' '')&' 5$,-$N %&'" #8 &4&'")' &$,' #8 ")&' & .'' #8 D '.' / * ")&'),(6 '" "1-&(' / > 7# > * $. ,

(I/3 3 '"2FD 3"D + ZD/ .' /GD/ #4 CD' D 27 ,I/ DE 3 ' OD E3/IH]'OD^ . /D3"D C/ ^ CD/ '..HD/

' '('@&' "81,")&,'&'$!"&('$'('(&!-$,&(6)$"' " +'$'('+)$--' @&' -$*81-' 8#,' +' $>&+"?;+' #1,"+' #8 D '.;+' &'!)6 #%%#'' 5-&$+6 $'(' 9!)&C1&,' '' ,&+2&!" 4&-?6 12#'' #" #'' %$(&' #'' @&)$-8 #8 ")&' D '.6 #,' 12#'' ")&' #" #'' #8 $'? 5,#+&!1"#,6 &-$"#,6 5-$ '" 886 #,' 3&%$'($'"6 #,' #8 $'? 3&8&'($'" #,' &'$'"6 '' $'? $+&' *)$"N +#&4&,6 *)&")&,' ! 4 -#,' !, % '$-6 #,'#'' $'? 2&'$-' "$"1"&6 &9!&2" '.' #'-?B '(!"%&'"+' 8#,' ,&$+#'' #,' &-#'? (&2&'('.' '' $'? #8 ")& +$ (' #1,"+6 $'(' ")&' +$ (' #1,"+ $'(' R1(.&+' ,&+2&!" 4&-? $,&')&,&@? $1")#, L&(' '' $'? #8 ")&' $+&+' @&8#,&' %&'" #'&(" '#,(&,' $'(' $22# '" ' 2&! $-' R1,?' "# @&' +",1!:' @&8#,&' ")&' 2,#2&,' 88 !&,' #8 &$!)' ,&+2&!N "4&

" 4&' #1,"6' 8#,' ")&' , $-' #8' $'?' ++1&' ># '&(' '' $'?' #8' ")&' +$ ('
$+&+' $'(' ", $@-&' @?' $'R1,?6' '' +1!)' $''&,' $+')&,& 'B$8"&,' (,&!"&('
8#,' ")&' +", : '.' #8' 2&! $-' R1, &+' $'(' &4&,?' R1,?' +#' +",1!:' +)$--' @&'
")&' R1,?' ,&"1,'&(' 8#,' ")&' , $-' #8' +1!)' ++1&

< ' '(' @&' "' 81,")&,' &'$!"&(6')$"' ")&')&, - '#8'&4&,?' #1'"?6' "?6' $'(' #*'' ,&+2&!" 4&-?6' #,') +' V'(&,')&, 886' +)$--6' * ") '' &'' 3$?+' 8,#%' ")&' 3&- 4&,?' #8' ")&' R1,#,+' ##:' 8#,' ")&' !1,,&''' &$,' " ' & ")&,' #8' ")&%6' "$:&' 8,#%' +1!)' ##:' ")&' $%&+' #8' $--' +1!)' 5&,+#'+' $+' $,&' #'+' #8' 5&&,+6' $'(' #8' $--' $,#'&"+6' D' .)"+6' $. +",$"&+6' $'(' #8' 5&,+#'+' *)#')$4&' +&,4&(' #,' @&&'' ,&"1,'&(' "#' +&,4&' ")&' 88 !&' #8')&, 88' #,' H,$'(' R1,#,' $"' ")&' ++ L&+6' $'(' #8' $--' $':&,+' $'(' *)#-&+$-&' &,!)$'"+' *)#' (#' '#"' &9&,! +&' ,&"$ -' ,$(&+6' $'(' #8' $--' ,$(&+' *)#' $,&' 2#++&++&(' #8' 5&,+#'$-' 5,#2&,"?' #8' ")&' <$-1&' #8' 4&' ")#1+$'(' 5#1'(+6' $'(' #8' ")&' &-(&+' #'+' #8' +1!)' 5&,+#'+' ,&+2&!" 4&-?6' $'(' 8' +1!)' 3&+!, 2" #'+' #8' 5&,+#'+' +)$--' '#"' @&' +#' '1%&,#1+' $+' "#' 81,' +)' $' !#%2&"&'' 1%@&,' #8' 5&,+#'+' #1"' #8' *)#%' $' 2&! $-' R1,?' %$?' @&' 8#,%&(6' $+')&,& 'B$8"&,' 2,#4 (&(6' ")&'' $' +188 ! &'' 1%@&,' #8' #")&,' 5&,+#'+' *)#+&' $%&+' $,&' !#'"$ '&(' '' ")&' R1,#,+' ##:6' #'+ (&,$" #'' @& '.')$(' #8' ")&' $':' $'(' 5,#2&,"?' #8' +1!)' 5&,+#'+6' $'(' +)$--' ,&+2&!" 4&-?' !$1+&' ")&' +$%&' "#' @&' 8$,-?' $'(' ",1-?' !#2 &(' #1"' '' $-2)$@&" !$-' ,(&,6' "#.&")&,' * ")' ")&' ,&+2&!" 4&' 5-$!&+' #8' @#(&' $'(' ((" #'+' #8' +1!)' &'' '' $' +&2$,$"&' +"6' "#' @&' +1@N ># '&(' "#' ")&' R1,#,+' ##:6' *) !)' +' +)$--' @&' !$--&(' \ )&' 2&! $-' R1,#,+' +"6^' $'(' +)$--' 2,&8 9' "#' &4&,?' $%&' '' +1!)' +' "+' 2,#N 2&,' 1%@&,6' @&. '' '.' ")&' 1%@&,+' 8,#%' ")&' 8 ,+' $%&6' $'(' !#'N " '1 '.' ")&%' '' $' ,&.1-$,' $, ")%&" !$-' &, &+' (#*'' "#' ")&' -$+' $%&6' $'(' +)$--' !$1+&' ")&' +$ (' +&4&,$-' 1%@&,+' "#' @&' *, ""&'' 12#'' (+" '!' 5 &!&+' #8' 5$,!)%&''' #,' $,(6' @& '.' $--6' $+' '&$,-?' $+' %$?' @&6' #8' &C1$-' L&6' $'(6' $8"&,' $--' ")&' +$ (' 1%@&,+' +)$--')$4&' @&&'' +#' *, ""&'6' +)$--' 21"' ")&' +$%&' "#.&")&,' '' $' +&2$,$"&' 3,$*&,' #,' #96' $'(' +)$--' ")&,&' +$8&-?' :&&2' ")&' +$%&6' "#' @&' 1+&(' 8#,' ")&' 51,2#+&')&,& 'B$8"&,' %&'" #'&(

@' "23' +D/^ E #E' E"27' OD' \ I 27 . DG' 2#G' 7 2O7D' 3 ' ED/FD' #' CD^ H 27' , I / DE

' E3' 3"D/D .'3 ' OD' O 2GD!' 2#G' 2') I O OD/' 3 ' OD' C/D. &DG' 3 ' D2H"') 2 O D

) I O OD/E' 3 ' OD' Z / 33D#' #' EDC2/23D' (2/GE' 2#G' C I 3' #3 ' 2' &

< ' '(' @&' "' 81,")&,' &'$!"&(')$"' *)&'&4&,' $'?' #8' ")&' #1,"+' #,' R1(.&+' $@#4&' %&'" #'&(' +)$--' #,(&,' $' 2&! $-' R1,?' "#' @&' +",1!:' @&8#,&' ")&' 2,#2&,' 88 !&,' #8' +1!)' #1,"6' +1!)' 88 !&,' +)$--' $22#' '' $' %&' $'(' 5-$!&' 8#,' ")&' #% '$" #'' #8' +1!)' 2&! $-' R1,?' ' $'(' $' #2?' #8' ")&' 1-&' #8' #1,"$'(' #8' +1!)' 88 !&,;+' 22#' '"%&''' +)$--' @&' +&,4&(' #'' ")&')&, 88' #,' V'(&,')&, 88' #8' ")&' #1'"?6' "?6' #,' #*'' '' *) !)' ")&' , $-' +' "#' @&')$(6' $'(' $-+#' #'' $--' ")&' 5$," &+' *)#')$4&' 1+1$--?' @&&'' +&,4&(' * ")' ")&' +$%&' ,&+2&!" 4&-?' '' ")&' $! !1+"#%&(' $''&,' $'(' ")&' +$ (' 88 !&,6' $"' ")&' %&' $'(' 5-$!&' $22#' '"&(6' @& '.' $"'&'(&(' @?' +1!)')&, 88' #,' V'(&,')&, 886' #,') +' .&'"6' *)#' $,&')&,&@?' ,&+2&!N " 4&-?' ,&C1 ,&(' "#' @, '.' * ")' ")&%' ")&' R1,#,+' ##:' $'(' +1!)' 2&! $-' R1,#,+' +"6' #,' *#' #2 &+' ")&,&#8' + .'&(' @?' +1!)')&, 88' #,' V'(&,')&, 886' $'(' $--' ")&' 1%@&,+' +#' *, ""&'' #'' (+" '!' 5 &!&+' #8' 5$,!)N %&''' #,' $,(' $+' $8#,&+$ (6' +)$--6' '' ")&' 5,&+&'!&' #8' $--' ")&' 5$," &+' '' $'?' #8' ")&' $+&+' $8#,&+$ (6' $'(' #8' ")&' ,' ""#' &+6' 8' ")&?' ,&+2&!N " 4&-?' !)##+&' "#' $""&'(' #,' #8' ")&' +$ (' 5$," &+' #,' ")&' ,' ""#' &+6' $--' #8' ")&' 1%@&,+' $'(' ")&' ,' ""#' &+' $""&'(' '' ")&' +$ (' @?' +&' $'(' 8' 21"' $--' ")&' +$ (' 1%@&,+' * ")' ")&' %&6' '' "#' @&' @?')$%' 2,#4 (&(' 8#,' ")&' 51,2#+&6' $'(' $8"&,')$4 '.' +)$:&' '' ")&%' "#.&")&,' +)$--' (,$*' #1"' #8' ")&' +$ (' #9 #,"?B

"+ . HD/' .' (I / 3' 3 ' 2CC #3' 3"D' O D' 2#G' +72HD' . /' # O #23 #4' CDH 27' , I / 6

#GD/' "D/ .' /' " E' 4D#3!' 3 ' 233D#G' ' .. HD/' Z 3"' 3"D' CDH 27 , I / /E' E3

' .. HD/' 3 ' C I 3' 27' 3"D') I O ^ OD/E' #3 ' 2' &!' 2#G' 3

G/2Z' I3' A /36 D 4"3!' 2#G'3 'H"DH]' 3"DO' Z 3"' 3"D') I OOD/E' 2#G') 2 0 DE' #' 3"D' E3N

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<ˢ O '(ˢ @&ˢ "81,")&,ˢ&'$!"&(6ˢ)$"ˢ '#ˢ)&, 8 6ˢ V'(&,ˢ)&, 886 #,#'&,6ˢ - +#,6ˢ $- 886ˢ #,ˢ #")&,ˢ 88 !&,ˢ #,ˢ 5&,+#'ˢ *)$"+#&4&,6ˢ +)$--ˢ (,&!"-?ˢ #,ˢ '(,&!"-?ˢ "$:&ˢ #,ˢ ,&!& 4&ˢ $'?ˢ #'&?ˢ #,ˢ #")&,ˢ &*$,(6ˢ #,ˢ 5,#% +&ˢ #8ˢ #'&?ˢ #,ˢ &*$,(6ˢ #,ˢ $'?ˢ #'+ (&,$"#'ˢ *)$"+#&4&,6ˢ #,ˢ ")&ˢ 5,#% +&ˢ #8ˢ $'?ˢ #'+ (&,$"#'6ˢ "#ˢ &9!1+&ˢ $'?ˢ $'ˢ 8,#%6ˢ +&,4 '.ˢ #,ˢ 8,#%ˢ @& '.ˢ +1%%#'&(ˢ "#ˢ +&,4&ˢ #'ˢ R1, &+6ˢ #,6ˢ 1'(&,ˢ $'?ˢ +1!)ˢ #-#1,ˢ #,ˢ 5,&"&'!&ˢ $'(ˢ ")$"ˢ '#ˢ $- 88ˢ #,ˢ #")&,ˢ 88 !&<$22# '"&(ˢ @?ˢ $'?ˢ)&, 886ˢ V'(&,ˢ)&, 886ˢ #,#'&,6ˢ #,ˢ - +#,6ˢ "#ˢ +1%%#'ˢ R1, &+6ˢ +)$--ˢ +1%%#'+ˢ $'?ˢ $'ˢ "#ˢ +&,4&ˢ ")&,&#'6ˢ #")&,ˢ ")$'ˢ ")#+&ˢ *)#+&ˢ $%&+ˢ $,&ˢ +2&! 8&(ˢ 'ˢ $ˢ E$,,$'"ˢ #,ˢ $'($"&7+ .'&(ˢ @?ˢ +1!)ˢ)&B] B, 88ˢ V'(&,ˢ)&, 886ˢ #,#'&,6ˢ #,ˢ - +#,6ˢ $'(ˢ (,&!"&(ˢ "#ˢ +1!)ˢ $- 88ˢ #,ˢ #")&,ˢ 88 !&,ˢ $'(ˢ 8ˢ $'?ˢ)&, 886ˢ V'(&,ˢ)&, 887ˢ #,#'&,6ˢ - +#,6 $- 886ˢ #,ˢ #")&,ˢ 88 !&,ˢ +)$--ˢ * -81--?ˢ ",$'+.,&++ˢ ';$'?ˢ #8ˢ ")&ˢ $+&+ˢ $8#,&+$ (6ˢ #,ˢ +)$--ˢ '&.-&!"ˢ "#ˢ +1%%#'ˢ $'?ˢ R1,#,66ˢ #,ˢ +)$--ˢ +1%%#'ˢ $'?ˢ R1,#,ˢ -&++ˢ ")$'ˢ #1,ˢ 3$?+ˢ @&8#,&ˢ ")&ˢ 3$?ˢ #'ˢ *) !)ˢ)&ˢ +ˢ "#ˢ $""&'(6ˢ &9!&2"ˢ 'ˢ ")&ˢ $+&+ˢ)&,& 'B@&8#,&ˢ &9!&2"&(6ˢ ")&ˢ #1,"ˢ #8ˢ ++L&6ˢ +ˢ5, 1+6ˢ ?&,ˢ $'(ˢ &,% '&,6 H$#-ˢ 3&- 4&,?6ˢ #,ˢ #1,"ˢ #8ˢ &++#'+ˢ #8ˢ")&ˢ 5&$!&ˢ *") 'ˢ *)#+&R1, +(!"#'")&ˢ 88&'!&ˢ +)$--ˢ)$4&ˢ @&&'ˢ !#%%"&(6ˢ %$?ˢ $'(ˢ +ˢ)&,&@?ˢ ,&C1 ,&(6ˢ #'ˢ 9$% '$"#'ˢ $'(ˢ 5,##8ˢ #8ˢ +1!)ˢ 88&'!&6ˢ 'ˢ $ˢ +1%%$,?ˢ E$?ˢ "#ˢ +&"ˢ +1!)ˢ $ˢ '&ˢ 12#'ˢ &4&,?ˢ 5&,+#'ˢ +#ˢ #88&'(ˢ '.ˢ $+ˢ ")&ˢ #1,"ˢ +)$--ˢ ") '.ˢ %&&"6ˢ $!!#,('.ˢ "#ˢ ")&ˢ $"1,&ˢ #8ˢ ")&ˢ 88&'!&) ˢ B #D6ˢ 3 ˢ ODˢ 32]D 5%3 ˢ D&H I EDˢ +D/^ E,#Eˢ ./ Oˢ ED/F #4) #D 3 ˢ ODˢ O I 3ˢ 3" E%ˢ #2ODGˢ #ˢ ODˢ @2//2#3

<ˢ '(ˢ @&ˢ "81,")&,ˢ&'$!"&(ˢ)$"ˢ 8ˢ $'?ˢ +1!)ˢ .)ˢ #'Bˢ +"$@-&ˢ #,ˢ #--&!"#,ˢ $+ˢ $8#,&+$ (ˢ +)$--ˢ ,&81+&ˢ #,ˢ '&.-&!"ˢ X1'-&++ˢ 2,&Bˢ 4&'"&(ˢ @?ˢ !:'&++[ˢ "#ˢ %$:&ˢ #1"ˢ #,ˢ $++ +"ˢ 'ˢ %$: '.ˢ #1"ˢ $'?ˢ +"ˢ ,&C1 ,&(ˢ @?ˢ ") +ˢ !"6ˢ +#ˢ ")$"ˢ ")&ˢ +$%&ˢ +)$--ˢ '#"ˢ @&ˢ %$(&ˢ #1"ˢ $"ˢ ")&ˢ %&ˢ $'(ˢ 'ˢ ")&ˢ $''&,ˢ)&,& 'B@&8#,&ˢ (,&!"&(6ˢ #,ˢ +)$--ˢ * -81--? #%ˢ #1"ˢ #8ˢ +1!)ˢ +"ˢ $'?ˢ $'ˢ *)#+&ˢ $%&ˢ #1.)"ˢ "#ˢ @&ˢ '+&,"&(ˢ ")&,& 'ˢ #,ˢ +)$--ˢ * -81--?ˢ '+&,"ˢ ")&,& 'ˢ ")&ˢ $%&ˢ #8ˢ $'?ˢ $'ˢ *)#ˢ #1.)"ˢ "#ˢ @&ˢ #%ˢ "&(6ˢ #,ˢ +)$--ˢ "$:&ˢ $'?ˢ #'&?ˢ #,ˢ #")&,ˢ &*$,(6ˢ #,ˢ 5,#% +&ˢ #8ˢ #'&?ˢ #,ˢ &*$,(6ˢ #,ˢ #")&,ˢ #'+ (&,$"#'6ˢ 8#,ˢ #%ˢ "ˢ '.ˢ #,ˢ '+&,"ˢ '.ˢ $'?ˢ $'ˢ *)$"+#&4&,6ˢ #,ˢ +)$--ˢ * -81--?ˢ '+&,"ˢ ")&,& ˢ $ˢ *,#'.ˢ 3&+!, 2"#'ˢ #8ˢ ")&ˢ $%&6ˢ 5-$!&ˢ #8ˢ @#(&6ˢ "-&6ˢ T1$-"?6ˢ $-- '.6ˢ 1+ '&++6ˢ #,ˢ ")&ˢ $"1,&ˢ #8ˢ ")&ˢ T1$- 8 !$"#'ˢ #8ˢ $'?ˢ $'ˢ ,ˢ +)$--ˢ ,&81+&ˢ #,ˢ * -81--?ˢ '&.-&!"6ˢ 'ˢ !$+&ˢ ")&ˢ 1%@&,ˢ #8ˢ #,%+ˢ #8ˢ &"1,'+ˢ (&- 4&,&(ˢ @?ˢ ")&ˢ -&,:ˢ #8ˢ ")&ˢ 5&$!&ˢ +)$--ˢ @&ˢ '+188 ! &'"6ˢ "#

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5&$!& +)$-- @& +1%%#'&(#, %2$'&--&($+ $ R1,#, "# +&,4& $" $'? O #DG 2E
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+1!) 5&,+#'6 '#" C1$- 8 &($+ -$+" $8#,&+$ (6 +)$--)$4& @&&' %2$N OI3 .EZ /#!
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$-- +1!) $+&+ "# *) !) ") + !" (#") '#" &9"&'($+ $8#,&+$ (+)$--
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1'-&++ +#%& ,&$+#'$@-& 9!1+&)$-- @& 2,#4&(#' $") #, 88 N
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$+ ")&? +)$-- ,&+2&!" 4&-> ") ': 8 "6 '#" &9!&&('. 4& 5#1'(+ $'(
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" 4&-? +)$-- %$:& #1" $'(+ .' $ &," 8 !$"&6 !#'"$ ' '. ")&), +" $'
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%$: '. (&8$1-"6 "#.&")&, * ") ")& %#12" #8 ")& '& %2#+&(6 $'(
")& $1+& #8 +1!) '&6 $'(+)$-- ",$'+% " +1!) &," 8 !$"& "# ")&
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A #DE 3 OD
#/ 77DG O6
(7D/] . 3 " D
+D2HD! 2#G
7DF DG 2E
A #DE 0^
C EDG 23
Y I 2/3D/ DE

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-&,: +)&,&@? ,&C1 ,&("# !#2? ")& '&+ + !&," 8 &(#' ")& #--
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' - :& $''&,6 $'(+1@>&!" "# ")& - :& 5#*&,+6 5,#4 + #'+6 $2(
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$'(' 8#,' E$'" #8' +188 ! &'" 3 +",&++' ")&' 88&'(&,' +)$--' @&' !#%% ""&(6' @?' E$,,$'" 1'(&,' ")&' $'(' $'(' &$-' #8' +1!)' R1+" !&6' "#' ")&' #%A' %#"' H$#-' #,' #1+&' #8' #,,&!" #"' 8#,' +1!)' &,%' '#" &9!&&('.' 9' $-&'($,' #'")+' $+' +1!)' R1+" !&' +)$--' ") ':' 2,#2&,6' 1'-&++' +1!)' 5&'$-"?' @&' +##'&,' 2$ (

' '('8#,'")&' %#,&' &$+?' $'(' +2&&(?' #'4 !" #"' #8' 88&'(&,+' $.$ '+"') +' !"6' @&' " 81,")&,' &'$!"&(6')$"6')&' R1+" !&' @&8#,&' *)#%' $'?' 5&,+#"' +)$--' @&' !#'4 !"&(' #8' $'?' 88&'!&' $.$ '+"' ") +' !" +)$--' $'(' %$?' !$1+&' ")&' #'4 !" #"' "#' @&' (,$*" 12' '")&' 8#--#* '.' #,%' #8' E#,(+6' #,' '$'?' #")&,' #,%' #8' E#,(+' "#' ")&' +$%&' 88&!"6' $+' ")&' $+&' +)$--')$22&'>'

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< ʾ '(@& " 81,")&,ʾ &'$!"&(6)$" 8,#% $'($8"&,ʾ ")& 2$++A '.ʾ #8 ") + !" +)$-- '#" @& -$*81-6 & ")&,ʾ 8#,ʾ ")& D '.ʾ #,ʾ $8-? '& #ʾ + &)$-86 #,ʾ 8#,ʾ $'? 5$,"? #,ʾ 5$," &+ ʾ $'? $+& *)$"+#&4&,6 "# !#%%&'!& #,ʾ 2,#+&!1"& $'? E, " #8 ""$ '" $.$ '+" $'? R1,? #,ʾ R1,#,+ 8#,ʾ ")& <&,(!" @? ")&% . 4&'6 #,ʾ $.$ '+" ")& 5$,"? #,ʾ 5$," &+ *)# +)$--)$4& R1(.%&'" 12#'ʾ +1!) <&,(!" ʾ $'(")$" '# 'C1&+" +)$-- @& "$:&'ʾ "# 'C1 ,& #8 ")& #'!&$-%&'"+ #8 ")&,ʾ 'C1&+"+6 @1" ")$" $-- +1!) ""$ '"+ $'('C1&+"+ +)$--)&'!&8#,") !&$+&6 @&!#%& 4# (6 $'(1""&,-? $@#- +)&(ʾ $'? $*6 "$"1"&6 #,ʾ V+$.& "# ")& !#'",$,? '#"* ")+"$'('.

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ʾ '(@& " 81,")&,ʾ &'$!"&(ʾ)$" ")#+& 5$,"+ #8 ") + ! *) !)ʾ ,&-$"&ʾ "# ")& ++1 '.ʾ #8 E$,,$'"+ $'(5,&!&2"+ 8#,ʾ ")& &"1, #8 R1,? +"+6 ")& 5,&2$,$" #'6 5,#(1!" #'6 &8#,%$" #'6 $'(--#*N $'!& #8 ")#+& +"+6 ")&)#-('.ʾ #8 &++ #'+ 8#,ʾ ")#+& 51,2#+&+6 ")& #,%$" #'ʾ #8 $ R1,#,+ ##:6 $'(")& 3&- 4&,? ")&,& "# ")&)&, 886 $'(")& 5,&2$,$" #'ʾ #8 $ +" #8 2&! $- R1,#,+6 $'(#8 5$,!)%&'" #,ʾ $,(+6 ʾ ")& $''&,ʾ)&,&#8#,& %&'" #'&(6 +)$-- !#%%&'!& $'("$:& &88&!" +# +##'ʾ $8"&,ʾ ")& 2$++ '.ʾ #8 ") + $+ ")5 2,#2&,ʾ 5&, #(+ 8#,ʾ (# '.ʾ ")#+&) '.+ +)$-- #!!1,ʾ $'(")$" ")& ,&+" #8 ") + ! +)$--

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&$,+' #8' .&6' #1.)" "#' $22&$,' $" 'C1&+"+' 8#,' ")&' 3&$")' #8' $' '
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' $+' 2,&+!, @&+' ")&' #(&' #8' , $-' *)&,&' #' &' 5$,"?' #,' @#")'
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5,#!&++' +)$--' @&' "$:&' ' @&"*&& ' - &' +' $' (' 3&' L&' +' $' (' +#' %1!)' Q' ' ' Q'
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&*$,(' "#' . 4&' ")& ,' <&,(!" ' $' (' +#' %1!)' ")&,&#8' $+' ,&-$"&+' "#' ")&' H' '
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Q ' & - $'(' ")$" ")&' +&4&,$-' !"+'
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' &' "81,")&,' &'$!"&(6')$"$'?+1!)' 5,&+&'"%&'" $+' +' (,&!"&(' @?' ")&' +$ (' ,&! "&(' !" #,' !"+' +)$--' @&' %$(&')$-8B?&$,-?6' $'(' ")&' %#1'" ")&,&#8' 2$ (' "#' ")&' ,&$+1,&,' #8' +1!)' '8 ,%$,?' #,' #+2 "$-' #8' +1!)' #1'"?6' #1'"?' #8' $' "?6' #,' #1'"?' #8' $' #*'' ' $'(' $-+#' ")$" ")&' &," 8 !$"&' $+' (,&!"&(' @?' +1!)' ,&! "&(' !" #,' !"+' $8#,&+$ (' +)$--6' '' $(("#'' "#' *)$" +' ,&C1 ,&(' @?' ")&' +$ (' !" #,' !"+6' !#'"$ '' ")&' 8#--#*' '.' E #,(+' ")$" +' "#' +$?6' \')$" ")&' +$ (' 1,.&#'' #,' 5)?+ ! $'')$")' + '!&' ")&' -$"&' ++ L&+' (- .&'"-?' !#%2- &(' *")' ")&' 1-&+' $'(' &.1-$"#'+' #8' ")&' H#4&,'#,+' #8' ")&' +$ (' '8 ,%$,?' #,' #+2 "$-$'(' $-+#' ")$" ",1&' #2 &+' #8' +1!)' &""&,+' &+" %#' $-' $+' $,&' -&C1 ,&(' @?' ")&' !" #8' ")&' 5$,- $%&'" #8' ' #8' ")&') ,"?B+ 9")') ,(' "#' @&' #@"$'&(' @?' +1!)' 1,.&#'' #,' 5)?+ ! $'' +)$--' @&' -$ (' @&8#,&' +1!)' H,$'(' R1,?' 2,&4 #1+' "#' ")&,' %$: '.' $'?' +1!)' 5,&N +&'"%&'"

(D/3 . H2.D' 3 ' H #32 #' HD/^ 32 #' @ /GE' DE3 O # 27E' 3 ' OD' 72 G' OD. /D' /2#G' , I/6

<' &' "81,")&,' &'$!"&(')$" ''&4&,?' $+&' *)&,&' ")&' 1,.&#'' #,' 5)?+ ! $'' #8' $'?' '8 ,%$,?' #,' #+2 "$-' +' '#*' ,&C1 ,&(' #,' &'$@-&(' @?' $*' "#' ,&!& 4&' $'?' 5$" &'" '"#")&' #+2 "$-' #,' '8 ,%$,?' '') +')$,.&6' #")&,' ")$'' @?' ")&' *, ""&'' F &!#%%&'($" #' #8' #'&' #8' ")&' H#4&,'#,+' #,' H#4&,'&++&+' $8#,&+$ (6' ")&' +$ (' 1,.&#'' #,' 5)?+ ! $'' +)&,&@?' ,&C1 ,&(' "#' ,&2#," +1!)' $+&' "#' ")&' +"$'(' '.' #%% ""&&' $" ")&' '&9" &&"' '.6' $+' *&--' $+' "#' 2,&+&,4&' ")&' &," 8 !$"&+' #8' $--' 5&,+#'+' ,&!#%%&'(&(' #' $'(' +)#1-(' $'?' 5$" &'" @&' +&' ,&!#%%&'(&(' @?' $'?' H#4&,'#,' #,' H#4&,'&++' #8' $'?' +1!)' '8 ,%$,?' #,' #+2 "$-6' *)#6' #'' 9$% '$" #' @?' +1!)' 1,.&#'' #,' 5)?+ ! $'6' +)$--' $22&$,' "#') %' #,' ")&%' "#' @&' '$(% ++ @-&6' 8,#%' ")&' 1-&+' $'(' &.1N -$" #'+' #8' ")&' H#4&,'#,+' #,' H#4&,'&++&+' #8' $'?' +1!)' '8 ,%$,?' #,' #+2 "$-6' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' 1,.&#'' #,' 5)?+ ! $'' "#' ,&>&!" +1!)' 5$" &'" $+' $'' '&, 5$" &'"6' $'(')&' +')&,&@?' ,&C1 ,&(' "#' &9N 2-$ '6' '' E, " '.' #'' ")&' $!:' #8' +1!)' &," 8 !$"&' #8' &!#%%&'($N " #'6' "#' +1!)' H#4&,'#,' #,' H#4&,'&++' +#' ,&!#%%&'('.' &4&,?' +1!)' 5$" &'6' ")&' (1&' $1+&' #8') +' '#' $(% ++ '.' &4&,?' +1!)' 5$" &'" $+' $8#,&+$ (

1@B +!, @&, "#$ 3+2&'+$,?# <' '(' @&' "81,")&,' &'$!"&(')$" '#' 1@+!, @&,' "#' $'?' 3+BA 2&'+$,? 8#,' ")&' 122#," #8' *) !)' $'?' H,$'(' R1,?' '' (' T B)&,&$8"&,

)&,&$8"&, 2,&+&'" $'? 1% #, 1%+ #8 ! '&? +)$-- @& &'" "-&("# F 3D 23
4#"& $" ")& -&!" #' #8 $'? 1,.&#' #, 5)?+ ! $' #8 $'? 3 +2&'+$,?
$+ $8#,&+$ (6 1'-&++ +1!) 5&,+#' +)$--)$4& 2$ ( ) + #,)&, 1@+!, 2B +!, 2(#'%&B
"#' "# ")& 8&$+1,&, #8 +1!) 3 +2&'+$,? $" -&$+" '& &$, !#%B F IE76 C2 G
2-&"&(@&8#,& $'? +1!) -&!" #' +)$-- "$:& 2-$!&6 +$4& $'(&9!&2" . /' '#D
+1!) 5&,+#'+ $+ +)$--)$4& +1@+!, @&("# ")& +$ (3 +2&'+$,? $" "+
#, . '$- #,%$" #'6 #, 2, #, "# ")& 8 ,+" H,$'(R1,? 5,&+&'"%&'" ' &HDC3 #!
$ (#8 ")& +$%&

< '(@& " 81,")&, &'$!"&(6)$" $'? H,$'(R1,? %$? $22# '" /2#G , I/6
"# ")& $,& #8 #1'"? H$#-+6 +1@>&!" "# ")& 5,#4 + #'+ #8 ")& +$ (3 '2CC #3 2
,&! "&(!"+6 $ 1,.&#' @& '.' $ &%@&,'#, !&'" $"& #8 #'& #8 ")& I/4D # 3 '
#?$- #-- &+ #8 1,.&#'+6 #, $ 5)?+ ! $' @& '.' $ &%@&, #, (I#36 2 7E
!&'" $"& #8 #'& #8 ")& #?$- #--&.&+ #8 5)?+ ! $'+' $'(")$" Z 3" I3
*)&'&4&, ")& 1,.&#' #, 5)?+ ! $' +# $22# '"&("# ")& $,& #8 $'? 272/6 ." D
#1'"? H$#- +)$-- $-+# @& ")& 1,.&#' #8 $ #1'"? '8 ,%$,? + "1$"& OD I/4D # .
*") ' 4& -&+ #8+1!) #1'"? H$#-6)& +)$-- 8#, $'(' !#'+ (&,$N 2# #. /02/6
"#' #8 +1!) $(("#'$- $-$,? *) !) ")& H,$'(R1,? + &%2#*&,&("# Z 3" #V B 7DE
2,&+&'" "# ")& 1,.&#' #8 $' '8 ,%$,?6 21,+1$'" "# ")& 5,#4 + #'+ #8 .'E2 0 D! O I 3
")& $8#,&+$ (,&! "&(!" #8 ")& 8"?B8#1,") &$, #8 ")& & .' #8 + 3"D/Z ED
$>&+"? D '. ")&) ,(6 . 4&) + 2,#8&++ #'$- &,4 !&+ $'(Z 3" 2 272/6
""&'($'!& "# ")& 5, +#'&,+ $'(#")&,+ *") ' +1!) #1'"? H$#-6
")#1" #")&, &&6 $-$,?6 #, &$,(> $'(" +)$-- '#" @& -$*81- 8#,
$'? H,$'(R1,? "# 2,&+&'" $'? 1% $+ $ $-$,? "# @& 2$ ("# +1!)
1,.&#' ' 4 ,"1& #8) + 22# '"%&'" $+ 1,.&#' #, 5)?+ ! $' #8 +1!)
#1'"? H$#-] 5,#4 (&('#") '.)&,& ' !#'"$ '&(+)$-- 2,&4&'" $'?
H,$'(R1,? 2,&+&'" '. $ 1% $+ $-$,? 8#, ")& 5)?+ ! $' #, 1,.&#'
#8 #1'"? H$#-+6 8 +1!) 5&,+#' @& #")&, ")$' ")& 1,.&#' #8 $'
'8 ,%$,? + "1$"& *") ' 4& -&+ #8 ")& #1'"? H$#- #8 +$%&
#1'"?

< '(@& " 81,")&, &'$!"&(6)$" " +)$-- $'(%$? @& -$*81- "# /2#G , I/6
$'(8#, $'? H,$'(R1,? ' $" ")& ++ L&+ > 5 * DOC ZD/DG
'&9" &'+1 '. $8"&, ")& -&!" #' #8 $'? +1!) 1,.&#' #, >
$8#,&+$ (6 "# !$-) % @&8#,& ")&%6 $'("# &9$% '& +1!) O D<# # H2ED
5)?+ ! $' +# &-&!"&(6 #, $'? #")&, 5&,+#' #, 5&,+#'+ ' . / OD/6 23
12#' H$")6 "#1!) '. ")& +$ (-&!" #' $'(8 " +)$-- $22&$, ")$" $'? 7DH3 #E .
88&,6 H 8"6 5,#% +&6 #, #$' #8 $'? #'&? #, #")&, 4$-1$@-&) '.
+)$--)$4& @&&' %$(&6 *") ")& 5, 4 "? #, #' @&)$-8 #8 $'? +1!)
1,.&#' #, 5)?+ ! $'6 & ")&, ")&' #, 2,#+2&!"6 "# 2,#!1,& $'? <#"&
#, <#"&+ 8#,) + -&!" #'6 " +)$-- ")& ' @& !#%2&"&'" ")& +$ (
H,$'(R1,?6 $'(")& +$ (H,$'(R1,? $,&)&,&@? $1")#, L&($'(,&N
C1 ,&(6 ")&,&12#' "# *"))#-($'? 1% #, 1%+ #8 #'&? 2,&+&'"&(
#, "# @& @? ")&% 2,&+&'"&(8#, #, $+ ")& $-$,? #8 ")& +$ (1,.&#'
#, 5)?+ ! $' #8 +1!) '8 ,%$,?6 #+2 "$-6 #, 3 +2&'+$,? $8#,&+$ (6
$'(")&' $'("")$" $+& +1!) 1,.&#' #, 5)?+ ! $' +)$-- @& (&&%&(
'!2@-& #8 ,&!& 4 '. $" $'? 81"1,& %& $'? #'&? @? 5,&+&'"%&'"
8,#% ")& +$ (#1'"? 8#, ")& $'$.&%&'" #8 $'? '8 ,%$,?6 #+2 "$-6
#, 3 +2&'+$,? *") ")& +$%&

3] 5, '"&(@? $'(
5, '"&,+ "# ")& D '.;+ %#+" 9!&--&'" $>&+"?

)) ' = , ' Y = '

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5 H3 3 /D4 I723D 3"D /2GD 3 = 2#G ,

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E ") & &9!-1+ 4& .)" #8 ",$(' . * ") ") & 3#% N
' #' + #8 ") & %2&,#, #8 $' (#8 ",$(' . " &$6
'#* & '>#?&(@? ") & V' "&(#%2$'? #8 &, !)$ '"+ #8
. ",$(' . "# ") & . * -- !&$+& 8,#% $' ($8"&, ") &
*&'"?B+&!#' (3$? #8 '& ")#1+$' (& .)")1' (,&($' (") ,"?B
8#1,] ' (*)&,&$+ " + &92&(&'" ")$" ") & ,$(& * ") $' (") &
,$(& " &$6 +)#1-(@& #2&' "# $-- + $>&+"?;+ 1@>&!"+6 $' (") $"
") & &+", !" #' + %2#+&(#" ") & ,$(& #8 + $>&+"?;+ 1@>&!"+
* ") 5-$!&+ @&?#' (")&) "# ") &
# 8#, ") & 51,2#+& #8 2,#"&!" ' . ") & &9!-1+ 4& .)"+ #8
,$(&)&,&"#8#,& &'>#?&(@? ") & +$ (#%2$'?6 +)#1-(@& ,&%#4&( ]
& " ")&,&8#,& &'$!"&(@? ") & D ' . ;+ %#+" 9!&--&'" $>&+"?6 @?
$' (* ") ") & (4 !& $' (#'+&'" #8 ") & #, (+ 2 , "1$- $' (
&%2#,$-6 $' (#%%#'+6 " ") + 2,&+&'" 5$,- $%&'" $++&%@-&(6 $' (
@? ") & 1")#, "? #8 ") & +$%&6)$" 8,#% $' ($8"&, ") & +$ (*&'"?B &2&$-#8 3 D
+&!#' (3$? #8 '& ")#1+$' (& .)")1' (,&($' (") ,"?B8#1, H3
$' !" 2$++&(" ") & #1,") &$, #8 ") & & . ' #8 + -$"& $>&+"? QU D&HDC3
D ' . ") & #1,")6 '" "1-&(*
$ $ $ 5 * >
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N ' ($6 +)$-- @& ,&2&$-&(6
&9!&2" +1!) 5$,"+ ")&,&#8 $+ ,&-$"& "# $ -#,+6 $+!$,+6 @& ' .
$" 4&+ #8 ") & &,, "#, &+ 1' (&, ") & H#4&,'%&'" #8 ") & .
#%2$'?6 @1" +# $+ '#" "# ,&4 4& $'? !"+ #, 5$,"+ #8 !"+ @? ") &
+$ (!" ,&2&$-&($' (&9!&2" $-+# $+ "# +1!) <#?$.&+ $' ((4&'N
"1,&+ $+ +)$--)$4& @&&' $!"1$--? !#%%&' !&(1' (&, ") & 1")#, "? #8
") & +$ (! " $' (&9!&2" $+ "# $'? 1 "+ $' (5,#!&&(' . + *) !) %$?
)$4& @&&' !#%%&' !&(6 $' (+)$-- @& (&2&' (' . #' ") & +$ (*&'"?B
+&!#' (3$? #8 '& ")#1+$' (& .)")1' (,&($' (") ,"?B8#1,

Q L L B (2C

$'(8,#% $'($8"&, ")& +$ (*&'"?B+&!#'(3$? #8 '&
")#1+$'(& .)")1'(,&($'(") ,"?B8#1, ")& '$!"%&'"+)&,& 'B$8"&,
!#'"$ '&(+)$-- !#%& '"# 2&,$"#'

=DCD27 . +/ " O 3 #E IC # 3"D OC 323 # . D2 2#G GE ./ O (" #2! O^ C EDG OF MP H 7U 2#G T H

'(@& " 81,")&, &'$!"&(6)$" +# %1!) #8 $' !" 2$++&('
")& 9") &$, #8 ")& & .' #8 + -$"& $>&+"? D '. ")&
#1,")6 '" "1-&(*
$+ 2,#) @ "+ ")& %2#,"$" #' #8 &$6 1'-&++ 8,#% ")& 5-$!& #8 "+
H,#*")6 $'(6 @? ")& #%2$'?6 $'('"# ")& 5#," #8
- $'($-+# +# %1!) #8 ")& +$ (!" $+ 2,#) @ "+ ")& %2#,"$N
"#' '"# ")& V' "&(D '.(#% #8 H##(+ 8,#% 1'-&++ @? ")&
. #%2$'?6 $'('"# ")& 5#," #8 - $'($-+# +#
%1!) #8 ")& +$ (!" $+ ,&C1 ,&+ ")$" ")& $' 8&+"+ #8) 2+
(&2$," '. 8,#% 5-$!&+ ' +)$-- @& $1")&'" !$"&(@? ")&) &8
12&,!$,.# #8 ")& . #%2$'? $'($-+# ")$" +# %1!) #8
$'#")&, !" 2$++&(' ")& +$ (9") &$, #8 ")& & .' #8 + +$ (
-$"& $>&+"? O ")& #1,")6 '" "1-&(
5 ," +) > " $+ 2,#) @ "+ ")& %2#,N
"$" #' #8 &$ '"# $'? #8 (5#++&++ #'+ ' * $'(
'"# ")& +-$'(#8 &9!&2" 8,#% ")& V' "&(D '.(#%6 #,
8,#%6 +#%& #")&, (5#++&++ #'+ ' * $'(1'-&++ @? ")&
. #%2$'? ,* ")")& , !&'!&6 +)$-- @&6 8,#% $'($8"&,
")& *&'"?B+&!#'(3$? #8 '& ")#1+$'(& .)")1'(,&($'(
") ,"?B8#1,6 ,&2&$"&($'(")&'!&8#,") X'#"* ")+"$'('. $'? 5,#N

77 / 3 E" IO5DH3E O26 H2//6 # /2GD OD6 #G 3"D (2CD . G > CD 3 3"D 3/D 4"3E . B 24D772#

4 + #'6 '$!"%&'"6 $""&,6 #,) '. %$(& 8#, ")& 51,2#+& #8
2,#"&!" '. ")& &9!-1+ 4& .)"+ #8 ,$(&)&,&"#8#,& &'>#?&(@? ")&
+$ (#%2$'?6 '$'?)$,"&, #8 ")& +$ (#%2$'?6 ' ")& +$ (!"
#, $'? #")&, !" #8 5$,- $%&'" !#'"$ '&(6[" +)$-- @& -$*81- 8#, $'?
#8 + $>&+"?7+ 1@>&!"+ "# !$,,? #' ,$(& * ") $'? #1'", &+
@&?#'(")& 9 " "# ")& ,

E3 . +D/^ E #E # O 2/G 2#6 " C 2/^ / F #4 # #G 2 3 OD GD7 FD/DG 3 '7. HD/E . (IE3 OE +D#2776 . /) D47DH3! UU

5,#4 (&($-*$?+6 $'(@& " &'$!"&(6)$" ")& 5&,+#')$4 '.
")& #%%$'(#8 $'?) 2 #, <&++&- $,, 4 '. $" $'? 5-$!& ' ")&
5#++&++ #' #8 #, 1'(&, ")& H#4&,'%&'" #8 ")& +$ (#%2$'? +)$--
%$:& #1"6 + .'6 $'((&- 4&, "# ")& 2, '! 2$- 88 !&, #8 ")& 1+"#%+6
#, #")&, 5&,+#' ")&,&1'"# -$*81--? $1")#, L&(6 $ ",1& $'(2&,8&!"
+"6 +2&! 8? '. ")& $%&+6 2! " &+6 $'(3&+!, 2" #' #8 $-- 5&,+#'+
*)# +)$--)$4& @&&2 #' @#$,(+1!)) 2 #, <&++&- $" ")& %& #8
"+ ,, 4$- $'(8 $'? 5&,+#')$4 '. ")& #%%$'(#8 +1!)) 2 #,
<&++&- +)$-- '#" %$:& #1"6 + .'6 $'((&- 4&, 1!) +"6)& +)$-- 8#,8& "
'&)1'(,&(5#1'(+6 #'& $-8 5$," #8 *) !) 5&'$-"? +)$-- @&-#'.
"# +1!) 5&,+#' #, 5&,+#'+ $+ +)$-- '8#,% #, +1& 8#, ")& +$%&6 $'(
")& #")&, $-8 5$," "# ")& +$ (#%2$'? $'(8 ")& +$ (#%2$'?
+)$-- '8#,% #, +1& 8#, ")& +$%&6 ")&' ")& E)#-& #8 ")& +$ (5&'$-"?
+)$-- @&-#'. "# ")& +$ (#%2$'?

+D#273 DE O Z /DH FD/^ 2O7D

< '(@& " &'$!"&( )$" ")& 5&'$-"? #, #,8& "1,& $8#,&+$ (
+)$-- @& ,&!#4&,$@-& @? !"#' #8 3&@"6 --6 5-$ '"6 #, '8#,%$"#'
'$'? #8 + $>&+"?;+ #1,"+ #8 &!#,(' ")& V' "&(D '.(#% #8
($'($'(# &-+&*)&,&6 #, ' $'?
#1,"+ ' "# *) !) R1, +(!"#' %$?)&,&$8"&, @& . 4&' @? ")&
MH#4&,'#, H&'&,$- #8 ")$" &)$-86 "# @& !#%N
%&'!&(' ")& #1'"?6 5,&+ (&'!?6 #-#'?6 #, &""-&%&'" *)&,& ")&
88&'(&, %$?)$22&' "# @& #8 @? #'4 !"#' ' $ +1%%$,? E$?
@&8#,& *# R1+" !&+ #8 ")& 5&$!& ' ")& V' "&(D '.(#%6
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$'(ˁ 12#'ˁ +1!)ˁ #'4 !"#'ˁ ")&ˁ 5&'$-"?ˁ #,ˁ #,8& "1,&ˁ $8#,&+$ (ˁ +)$--ˁ
$'(ˁ %$?ˁ @&ˁ -&4 &(ˁ @?ˁ 3 +",&++ˁ $'(ˁ $-&ˁ #8;ˁ")&ˁ H##(+ˁ $'(ˁ)$""&-+ˁ #8ˁ
")&ˁ 88&'(&,ˁ oE(ˁ 8#,ˁ E$'ˁ #8ˁ +1!)ˁ +188 ! &'ˁ 3 +",&++6ˁ &4&,?ˁ +1!)ˁ
88&'(&,ˁ %$?ˁ @7ˁ !#%% ""&(ˁ "#ˁ ")&ˁ #%%#'ˁ H#$-ˁ #,ˁ #1+&ˁ #8ˁ #,Bˁ
,&!" #1ˁ 8#,ˁ ")&ˁ 2$!&ˁ #8ˁ 8",&&ˁ $-&'($,ˁ #'")+

< ˁ '(ˁ *)&,&$+ˁ "6ˁ +ˁ &92&(&'ˁ 8#,ˁ ")&ˁ @>&!"+ˁ #8ˁ ,$(&ˁ $'(ˁ
$% !$@-&ˁ '"&,!#1,+&ˁ * ")ˁ ")&ˁ 3#% '#'+ˁ #8ˁ ")&ˁ %2&,#,ˁ #8ˁ ˁ
")$ˁ 5,#4 + #'ˁ @&ˁ %$(&ˁ 8#,ˁ ")&ˁ +"$@- +)%&'ˁ #8ˁ $ˁ (ˁ 1")#, "?ˁ
'ˁ ")&ˁ +$ (ˁ 3#% '#'+ˁ @&ˁ ˁ ")&,&8#,&ˁ &'$!"&(6ˁ)$"ˁ ˁ +)$--ˁ $'(ˁ %$?ˁ
@&ˁ -$*81-ˁ 8#,ˁ +ˁ $>&+"?6ˁ @?ˁ $'?ˁ #%% ++ #'ˁ #,ˁ #%% ++ #'+ˁ #,ˁ
E$,,$'ˁ #,ˁ E$,,$'"+ˁ 1'(&,ˁ +ˁ #?$-ˁ .ˁ $'1$-6ˁ "#ˁ $22# 'ˁ '#"ˁ
&9!&&('.ˁ),&&ˁ #8ˁ +ˁ $>&+"?;+ˁ 1@>&!"+ˁ "#ˁ @&ˁ 12&, '"&'(&'"+ˁ #8ˁ
")&ˁ ,$(&ˁ #8ˁ $>&+"?;+ˁ X 1@>&!"+ˁ "#ˁ $'(ˁ 8,#%ˁ ")&ˁ +$ (ˁ 3#% '#'+6ˁ
8#,ˁ ",&ˁ $,2#+&ˁ #8ˁ 2,#"&!" '.ˁ $'(ˁ 2,#%#" '.ˁ +1!)ˁ ,$(&6ˁ $'(ˁ @?ˁ
$'?ˁ +1!)ˁ #%% ++ #'ˁ #,ˁ E$,,$'ˁ $+ˁ $8#,&+$ (ˁ "#ˁ +&""-&ˁ +1!)ˁ H,$($" #'ˁ
$'(ˁ 1@#,('$" #'ˁ $%#'.ˁ ")&ˁ +$ (ˁ 12&, '"&'(&'"+ˁ X '&ˁ #8ˁ *)#%6ˁ
+)$--ˁ @&ˁ +"?-&(ˁ ")&ˁ) &8ˁ 12&, '"&'(&'"[6ˁ $'(ˁ "#ˁ $22# 'ˁ +1!)ˁ
88 !&,+ˁ "#ˁ $++ +ˁ ")&%ˁ ˁ ")&ˁ 9&!1"#'ˁ #8ˁ ")&,ˁ 31" &+6ˁ $'(ˁ "#ˁ .,$'ˁ
+1!)ˁ $-$, &+ˁ "#ˁ +1!)ˁ 12&, '"&'(&'"+ˁ $'(ˁ 88 !&,+6ˁ $+ˁ +ˁ $>&+"?ˁ
+)$-- 8,#%ˁ %&ˁ "#ˁ %&ˁ (&&%ˁ &92&(&'"

< ˁ '(ˁ @&ˁ "&'$!"&(ˁ)$"ˁ "ˁ +)$--ˁ $'(ˁ %$?ˁ @&ˁ -$*81-ˁ 8#,ˁ +ˁ
$>&+"?@?ˁ $8"?ˁ '!)ˁ ,(&,ˁ #,ˁ ,(&,+66ˁ #%% ++ #'ˁ #,ˁ #%% ++ #'+6ˁ
$+ˁ "#ˁ +ˁ $>&+"?ˁ 'ˁ #1'! -ˁ +)$--ˁ $22&$,ˁ &92&(&'ˁ $'(ˁ +$-1"$,?6ˁ "#ˁ
. 4&ˁ "#ˁ ")&ˁ +$ (ˁ 12&, '"&'(&'"+6ˁ #,ˁ $'?ˁ #8ˁ ")&%ˁ 5#*&,+ˁ $'(ˁ 1")#N
, "&+ˁ #4&,ˁ $'(ˁ 'ˁ ,&+2&!'ˁ #8ˁ ")&ˁ ,$(&ˁ $'(ˁ #%%&,!&ˁ #8ˁ +ˁ
$>&+"?;+ˁ 1@>&!"+ˁ * ")ˁ 'ˁ $'?ˁ 5$,"ˁ #8ˁ ")&ˁ +$ (ˁ 3#% '#'+ˁ $'(ˁ "#ˁ
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<ˢ '(ˢ @&ˢ "81,")&,ˢ &'$!"&(ˢ)$" #'ˢ $--ˢ 81"1,&ˢ <$!$'! &+ #8")&ˢ B GD .ˢ 8 !!ˢ #8ˢ 9")ˢ -&,:ˢ "# ")&ˢ +$ (ˢ &. +",$,+6 #")&,ˢ")$'ˢ ˢ")&ˢ (2EDE 2,#4 (&(ˢ 8#,ˢ #8ˢ ")&ˢ ++ +"$'" -&,:+6 ")&ˢ #,(ˢ)$'!&--#,ˢ 8#,ˢ ")&ˢ %(ˢ@& '.ˢ+)$--ˢ $22# '" +#%&ˢ 2,#2&,ˢ 5&,+#'ˢ *)#)$+ @&&'ˢ $(% ""&($'(ˢ &'"&,&(ˢ #'ˢ ")&ˢ #--ˢ #8ˢ #- ! "#,+ #,ˢ ""#,'ˢ &+ #8ˢ +#%&ˢ #'&ˢ #8 +ˢ $>&+"?;+ˢ #1,"+ˢ 'ˢ / * ˢ) ˢ #,ˢ *)# +)$--ˢ)$4&ˢ (1-?ˢ +&,4&(ˢ $ˢ &,%ˢ #8ˢ '#" -&++ˢ ")$'ˢ 4&ˢ &$,+ˢ 1'(&,ˢ ," !-&+ #8ˢ -&,:N +) 2 "# +#%&ˢ #- ! "#,ˢ #,ˢ ""#,'&? #8 +#%&ˢ #'&ˢ #8ˢ ")&ˢ +$ (ˢ #1,"6 "# @&ˢ +1!)ˢ 9")ˢ -&,:ˢ "# ")&ˢ +$ (ˢ &. +",$,+ˢ $'(ˢ ")$" ")&ˢ +&4&,$-ˢ -&,:+ "# ")&ˢ +$ (ˢ &. +",$,+ +# $22# '"&(ˢ $'(ˢ "# @&ˢ $22# '"&(ˢ+)$--ˢ $'(")&?ˢ $,&ˢ)&,&@?ˢ ,&C1 ,&(ˢ 2&,+#'$--? "# 2&,8#,%ˢ $--ˢ +1!)ˢ $""&,+ˢ $'(ˢ) '.+ˢ $+ˢ $,&ˢ '&!&++$,?ˢ $'(ˢ 2,#2&,ˢ 'ˢ ")&ˢ (1&ˢ 9&!1"#'ˢ #8ˢ ")&ˢ 1+ '&++ #8ˢ ")&ˢ +$ (ˢ 88 !&ˢ #8ˢ ")&ˢ &. +",$,+6 $'(ˢ $+ˢ)$4&ˢ @&& $) ")&,"# (#'&ˢ $'(ˢ 2&,8#,%&(ˢ @? ")&ˢ -&,:+ˢ #8ˢ ")&ˢ 1@ #,ˢ 3&21"?ˢ &. +",$,+ #8")&ˢ +$ (ˢ #1,"6 &9!&2" '.ˢ +# 8$,ˢ $+ ")&ˢ +$%&ˢ $,&ˢ #,ˢ +)$--ˢ @&ˢ <$,&(ˢ @?ˢ ")+ˢ !"6 #,ˢ @? $'?ˢ 1-&+ˢ #,ˢ ,(&,+ "# @&ˢ %$(&ˢ #,ˢ ++1&(ˢ @?ˢ ")&ˢ #,(ˢ)$'!&--#,ˢ 8#,ˢ ")&ˢ %&ˢ @& '.ˢ ,&-$" 4&ˢ ")&,&"#

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< ' '(' @&' '' 81,")&,' &'$!"&(6')$'' &$!)' #8' ")&' +$ (' $+"&,+' '' ,('$,?' #8' ")&' .)' #1,'' #8')$'!&,?' +)$--' * ") '' ")&' 8 ,+' #1,' 3$?+' #8' * ' &,%' '' &$!)' $'(' &4&,?' &$,' 2,&+&''' #,' !$1+&' "#' @&' 2,&+&'"&('"#' ")&' #,(')$'!&--#,' $' &2#,'' '' E, " '.' 1'(&,' ")&' $'(' #8' +1!)' $+"&,6' +"$" '.' ")&' 3$?+' #'' *) !)')&' +)$--')$4&' $""&'(&(' $'') +' 88 !&' 8#,' $'(' (1, '.' *&-4&' #'")+' 2,&!&('.' +1!)' &"1,'' '' ")&' 5&,8#,%$'!&' #8') +' 31"?6' +2&! 8? '.' ")&' 1%@&,' #8' #1,+' #!!12 &(' '' &$!)' #8' +1!)' 3$?;+' ""&'($'!&' $+' $8#,&+$ (' $'('

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81,")&,6' ")$'' &$!)' +1!)' $+"&,' +)$--' $''&9' "#' +1!)') +' &2#,'' $' +'' #,' !)&(1-&6' "#' @&' + .'&(' @?') %' '' - :&' $''&,6' #8' ")&' +&4&,$-' $1+&+6' 5&" " #'+6' #,' $""&,+' #8' &4&,?' 3&+!, 2" #'' ")&'' 2&'('.' '') +' 88 !&6' +)#* '.' ")&' ")&'' "$"&' $'(' "$.&' #8' ")&' +$%&' ,&+2&!" 4&-?6' (&+ .'$"' '.' &$!)' $1+&6' 5&" " #'6' #,' $""&,' @?' ")&' $%&' #,' $%&+' #8' ")&' 5$,"?' #,' 5$," &+' ")&,&"#6' +"%&' #8' ")&%6' *") '' ")&' $%&' #,' $%&+' #8' &$!)' #- ! "#,' &' .$.&(' ")&,&' '' $'(' ")&,&12#'' '' +)$--' @&' -$*81-' 8#,' ")&' +$ (' #,(')$'!&--#,' #8' %$:&' $'(' ++1&' +1!)' ,(&,' 8#,' 8- '.' #,' (&2#+ " '.' $'(' #")&,* +&' .4 '.' 51@- ! "?' $'(' !!&++' "#' +1!)' +"#,' !)&(1-&' $+')&' '') +' 3 +!,&" #'' +)$--' ") '.' 8'

+' "#' ")&' 5&,+#'' "#' @&' $22# '"&(') &8' -&,:

< ' '(' @&' '' 81,")&,' &'$!"&(')$'' '#' 5&,+#'' +)$--' @&' $22# '"&(' "#' @&') &8' -&,:' #8' $'?' $+"&,' '' ,('$,?' #8' ")&' +$ (' #1," 1'-&++')&' +)$--')$4&' @&&'' $(% ""&(' #'' ")&' #--' #8' #- ! "#,+' #,' #""#,'&+6' '' & #8' ")&' #1,"+' #8' / * ') ' 8#,' '#'' -&++' ")$'' 4&' &$,+6' +)$--')$4&' @&&'' $>1' #,' -&,: '' ")&' 88 !&' #8' #'&' #8' ")&' $+' $+"&,+' 8#,' $' $' &,%' #8' &'' &$,+

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' '(' @&' '' 81,")&,' &'$!"&(6')$'' '#' 5&,+#'' +)$--' @&' !#%N 2&--&(' #,' ,&C1 ,&(' "#' "$:&' #,' 2$?' 8#,' $'?' #2?' #8' $'?' 5$2&,' #,' 3#!1%&'' @&'.' '' ")&' 88 !&' #8' $'?' $+"&,' '' ,('$,?' $'(' ")$'' &4&,?' 5&,+#'' +)$--' @&' $'' - @&,"?' "#' "$:&' $' #2?' #8' +1!)' 5$," #' -?' $+')&' %$?' ,&C1 ,&' #8' $'4' 5$2&,' #,' 3#!1%&'' @&' '.' '' ")&' 88 !&' #8' $'?' +1!)' $+"&,6' $'(' #8' 7 '?' '"&,,#.$"#,' &+' $'(' 3&2#+ " #'+' @&' '.' '' ")&' 88 !&' #8' &' ")&,' #8' ")&' +$ (' #1,"] 5,#4 (&(' $-*$?+6' ")$'' '' ")&' 9" #''2' #+"+' $+' @&"*&&'' 5$,"?' $'(' 5$,"?6' #,' $+' @&"*&&'' #- ! "#,' $'(' - &''A' '#' 5&,+#'' @&' $--#*&(' ")&' #+"+' #8' ")&' #2?' #8' $'?' 5$2&,' #,' 3#!1%&'"6' #,' #8' $'?' 5$,' #8' $'?' 5$2&,' #,' 3#!1%&'"6' #,' .'$"' '.' '' ")&' $+"&,;+' 88 !&6' #,' @,#1.)'' '' @&8#,&' $+"&,;+' 88 !&6' #,' ",$'+!, @&(' #,' 8,#%' $'' #%2$(&' ")&,&' '6' $'(' "$:&'' @?' ")&

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5$,"?ˢ !-$ % ' .ˢ "#ˢ @&ˢ $--# * &(ˢ ")&ˢ #+"+ˢ ˢ+1!)ˢ &!#'(ˢ #,ˢ #")&,ˢ #2?6ˢ #,ˢ 1'-&++ˢ +1!)ˢ #2?ˢ +)$--ˢ)$4&ˢ @&&'ˢ %$(&ˢ 8#,ˢ ")&ˢ V+&ˢ #8ˢ $'?ˢ $+"&,6ˢ #,ˢ #8ˢ")&ˢ #1,"6ˢ #,ˢ @?ˢ")&ˢ 3&+ ,&ˢ #,ˢ 8#,ˢ ")&ˢ V+&ˢ #8ˢ")&ˢ - &'"ˢ #,ˢ - &'"+ˢ #8ˢ")&ˢ #- ! "#,ˢ !-$ % ' .ˢ "#ˢ @&ˢ 2$ (ˢ 8#,ˢ +1!)ˢ #2?

ˢ '(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(ˢ)$"ˢ &$!)ˢ $'(ˢ &4&,?ˢ #8ˢ ")&ˢ 88 !&,+ˢ 2#Gˢ $+"&,+ˢ 'ˢ ,('$,?6ˢ &. +",$,+6ˢ $'(ˢ -&, :+ˢ #8ˢ ")&ˢ +$ (ˢ &. +",$,+6ˢ -&, :+ˢ "#ˢ $+"&,ˢ #8ˢ &2#,"+ˢ $'(ˢ '", &+6ˢ -&, :ˢ #8ˢ 88 ($4 "+6ˢ $'(ˢ 9$% '&,+ˢ #8ˢ")&ˢ +$ (ˢ #1,"6ˢ +)$--ˢ)#-(ˢ R)&,ˢ +$ (ˢ 88 !&+ˢ (1, ' .ˢ ")&,ˢ .##(ˢ &Bˢ .##(7 &)$B7)$4 #1,6ˢ $'(ˢ +#ˢ -#' .ˢ $+ˢ ")&?ˢ +)$--ˢ 2&,+#'$--?ˢ . 4&ˢ ")&,ˢ ""&'($'!&ˢ 4 #1,ˢ 12#'ˢ "- & ,ˢ ,&+2&!" 4&ˢ 31" &+6ˢ $'(ˢ +)$--ˢ !#'(1!"ˢ ")&%+&-4&+ˢ)#'&+"-?ˢ $'(ˢ 8$ ")81--?ˢ 'ˢ ")&ˢ (1&ˢ 9&!1" #'ˢ #8ˢ")&ˢ 31" &+ˢ #8ˢ")&,ˢ +$ (ˢ 88 !&+ˢ ,&+2&!" 4&-?

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ˢ '(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(ˢ)$"ˢ ")&ˢ +&4&,$-ˢ 88 !&+ˢ #8ˢ ")&ˢ #1,+ˢ #8ˢ .)ˢ #1,"ˢ #8ˢ)$'!&,?ˢ +)$--ˢ @&ˢ $'(ˢ !#'" '1&ˢ #2&'ˢ 8#,ˢ ")&ˢ 3 +2$"!)ˢ 1+ '&++ˢ 'ˢ #8ˢ 1+ '&++ˢ (1, ' .ˢ +1!)ˢ #1,+ˢ 'ˢ ")&ˢ 3$?6ˢ $'(ˢ ")$"ˢ ")&ˢ 88 !&,+ˢ $'(ˢ -&, :+ˢ @&-#' . ' .ˢ ")&,&"#ˢ ,&+2&!" 4&-?ˢ +)$--ˢ $""&'(ˢ 'ˢ +1!)ˢ 88 !&+ˢ 'ˢ ")&ˢ 3 +!)$,.&ˢ #8ˢ")&,ˢ +&4&,$-ˢ 31" &+ˢ (1, ' .ˢ +1!)ˢ %&+ˢ $'(ˢ 8#,ˢ +1!)ˢ 1%@&,ˢ #8ˢ #1,+ˢ 'ˢ &$!)ˢ 3$?6ˢ $+ˢ ")&ˢ #,(ˢ)$'!&--#,6ˢ "#.&")&,ˢ * ")ˢ ")&ˢ $+"&,ˢ #8ˢ ")&ˢ #--+ˢ $'(ˢ < !&ˢ)$'!&--#,6ˢ #,ˢ '&ˢ #8ˢ ")&%6ˢ +)$--ˢ @?ˢ $'?ˢ ,(&,ˢ #,ˢ ,(&,+ˢ "#ˢ @&ˢ ++1&(ˢ @?ˢ ")&%ˢ 8,#%ˢ %&ˢ "#ˢ %&ˢ (,&!"ˢ $'(ˢ ")$"ˢ ")&ˢ 88 !&,+ˢ $'(ˢ -&, :+ˢ 'ˢ ")&ˢ +$ (ˢ ,&+2&!" 4&ˢ 88 !&+ˢ +)$--ˢ . 4&ˢ ")&,ˢ 2&,+#'$-ˢ ""&'($'!&ˢ 'ˢ ")&,ˢ ,&+2&!" 4&ˢ 88 !&+ˢ (1, ' .ˢ ")&ˢ %&+ˢ ")&?ˢ +)$--ˢ +#ˢ $+ˢ $8#,&+$ (ˢ @&ˢ (,&!"&(ˢ "#ˢ $""&'(6ˢ 1'-&++ˢ #")&,* +&ˢ &' .$.&(ˢ 'ˢ ")&ˢ 1+ '&++ˢ #8ˢ")&,ˢ ,&+2&!" 4&ˢ 88 !&+6ˢ #,ˢ 2,&N 4&'"&(ˢ @?ˢ ! :'&++ˢ #,ˢ #")&,ˢ 1'$4# ($@-&ˢ $1+&6

ˢ '(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(ˢ)$"ˢ "ˢ +)$--ˢ $'(ˢ %$?ˢ @&ˢ -$ * 81-ˢ #,(ˢ)$'N 8#,ˢ ")&ˢ #,(ˢ)$'!&--#,6ˢ * ")ˢ ")&ˢ (4 !&ˢ #8ˢ ")&ˢ $+"&,ˢ #8ˢ ")&ˢ #--+ˢ !&--#,ˢ &%N $'(ˢ < !&ˢ)$'!&--#,6ˢ #,ˢ '&ˢ #8ˢ")&%6ˢ $'(ˢ ")&?ˢ $,&ˢ)&,&@?ˢ ,&C1 ,&(6ˢ 2#*&,&(ˢ "#ˢ 8#,")* ")ˢ "#ˢ %$:&ˢ $'(ˢ ++1&ˢ +1!)ˢ .&'&,$-ˢ ,(&,+ˢ $+ˢ ")&?ˢ +)$--ˢ ")ˢ ':ˢ %$:&ˢ 1-&+ˢ 8ˢ 8#,ˢ + %2- 8?N 8"ˢ 8#,ˢ !$,,? ' .ˢ ")&ˢ 5,#4 + #'+ˢ #8ˢ ") +ˢ !ˢ '"#ˢ &9&!1" #'6ˢ $'(ˢ +1!)ˢ '.ˢ $'(ˢ #")&,ˢ 1-&+ˢ $'(ˢ ,(&,+6ˢ '#"ˢ @& '.ˢ '!#'+ +"&'"ˢ * ")ˢ ")&ˢ '$!"%&'"+ˢ +&"ˢ - ' .ˢ ")&ˢ $'(ˢ 5,#4 + #'+ˢ #8ˢ ") +ˢ !"6ˢ $+ˢ ")&?ˢ +)$--ˢ ")ˢ ':ˢ 8ˢ $'(ˢ 2,#2&,6ˢ 8#,ˢ + %N 2- 8? .6ˢ &+"$@- +) .6ˢ $'(ˢ +&""- ' .ˢ ")&ˢ 5,$!" !&ˢ #8ˢ ")&ˢ 5,$!" !&ˢ #8ˢ")&ˢ +$ (ˢ #1,"ˢ #1,"ˢ $'(ˢ #8ˢ "+ˢ +&4&,$-ˢ 88 !&+

ˢ '(ˢ @&ˢ "ˢ &'$!"&(ˢ)$"ˢ ")&ˢ #,(ˢ)$'!&--#,6ˢ * ")ˢ ")&ˢ 2#Gˢ "#ˢ 2##!7 - :&ˢ (4 !&ˢ #8ˢ")&ˢ $+"&,ˢ #8ˢ ")&ˢ #--+ˢ $'(ˢ < !&ˢ)$'!&--#,6ˢ #,ˢ '&ˢ #,ˢ $-"&,ˢ ")&ˢ #8ˢ ")&%6ˢ +)$--ˢ @&ˢ $'(ˢ +ˢ)&,&@?ˢ $1")#, L&(ˢ $'(ˢ &%2#*&,&(6ˢ @?ˢ ")&ˢ +$%&ˢ - :&ˢ .&'&,$-ˢ ,(&,+ˢ "#ˢ @&ˢ %$(&ˢ $'(ˢ ++1&(ˢ @?ˢ ")&%ˢ $+ˢ $8#,&+$ (6ˢ 8,#%ˢ %&ˢ "#ˢ %&ˢ "#ˢ $''1-6ˢ $-"&,6ˢ #,ˢ 4$,?ˢ $'?ˢ ,(&,+ˢ *) !)ˢ %$?ˢ)$4&ˢ @&&'ˢ +#ˢ $+ˢ $8#,&+$ (ˢ %$(&ˢ $'(ˢ ++1&(6ˢ $'(ˢ "#ˢ ++1&ˢ '&*ˢ 1-&+ˢ $'(ˢ ,(&,+ˢ 8#,ˢ ")&ˢ 51,2#+&+ˢ)&,& 'B@&8#,&ˢ %&'" #'&(6ˢ #,ˢ $'?ˢ #8ˢ ")&%

<ˢ '(ˢ @&ˢ "ˢ 81,")&,ˢ &'$!"&(ˢ)$"ˢ "ˢ +)$--ˢ @&ˢ -$ * 81-ˢ 8#,ˢ ")&ˢ $+"&,ˢ #8ˢ ")&ˢ $+"&,ˢ #8ˢ ")&ˢ #--+ˢ 8#,ˢ ")&ˢ %&ˢ @& ' .6ˢ $'(ˢ)&ˢ +ˢ)&,&@?ˢ ,&C1 ,&(6ˢ "#ˢ (&N "#ˢ)&$,ˢ $'(ˢ (&"&,% 'ˢ &ˢ $--ˢ +1!)ˢ #"#'+ˢ $, + ' .ˢ 'ˢ $1+&+ˢ (&2&'(' .ˢ &,% 'ˢ 'ˢ ")&ˢ .)ˢ #1,"ˢ #8ˢ)$'!&,?ˢ $+ˢ +)$--ˢ @&ˢ (1-?ˢ %$(&ˢ @&8#,&ˢ) %ˢ $!!#,(' .ˢ "#ˢ ")&ˢ V+$.&ˢ $'(ˢ 5,$!" !&ˢ #8ˢ %$: ' .ˢ #"#'+ˢ 'ˢ $1+&+ˢ @&8#,&ˢ ")&ˢ #,(ˢ)$'!&--#,6ˢ $'(ˢ "#ˢ)&$,ˢ $'(ˢ (&"&,% 'ˢ &ˢ $--ˢ +1!)ˢ 5-&$+ˢ $'(ˢ 3&%1,,&,+ˢ 8 -&(ˢ 'ˢ $1+&+ˢ (&2&'(' .ˢ 'ˢ ")&ˢ .)ˢ #1,"ˢ #8ˢ)$'B &&,?

&&,?' $+' +)$--' @&' (1-?' +&" (#* '' 8#,')&$, ' .' @&8#,&') %' ' $' (' ")$" $--' ,(&,+' %$(&' @?' ")&' +$ (' $+"&,' #8' ")&' #--+' 8#,' ")&' %&' @& ' .' 12#'' ")&')&$, ' .' #8' +1!)' #" #' +6' 5-&$+6' $' (' 3&%1,,&,+' ,&+2&!" 4&-?' +)$--' @&' (&&%&(' $8 (' "$:&'' "#' @&' ,&+2&!" 4&-?' 4$- (' ,(&,+' #8' ")&' .)' #1," #8')$'!&,?' -' +1@>&!" '&4&,")&-&++' '' &4&,?' $+&' "#' @&' (+!)$,.&(6' ,&4&,+&(6' #,' $-"&,&(' @?' ")&' #,(')$'!&--#,' 8#,' ")&' %&' @& ' .

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<' 5,#4 (&(' $-+#6' $' (' @&' " 81,")&,' &' $!"&(')$" '#") ' .')&,& '' !#'"$ '&(' +)$--' @&' !#'+",1&(' "#' ,&C1 ,&' ")&' 2,&+&'' $+"&,' #8' ")&' #--+' "#')&$ ' $' (' ('"&,% '' $' ?' +1!)' #" #' +6' 5-&$+6' #,' 3&%1,,&,+6' 1'-&++')&' +)$--' ") ' :' 8 '' "#' . 4&' 3 ,&!" #' +' 8#,' ")$" 51,2#+&

#- ! "#,+' $22# '"&(' "#' $'?' 88 !&' 1'(&,' ") +' !' "#' @&' +",1!:' #88' ")&' #--+

< ' ' (' @&' " 81,")&,' &' $!"&(')$" &4&,?' #- ! "#,' #,' ""#, '&?' *)#' +)$--' @&' $22# '"&(' "#' $' (' +)$--' $!!&2" $'?' 88 !&' #,' %2-#?%&'' 1' (&,' #,' @?' 4 ,"1&' #8' ") +' !' +)$--' 8#,") * ")' @&' +",1!:' #88' ")&' #--' #8' #- ! "#,+' #8' ")&' .)' #1," #8')$'!&,?6' $' (' #886")&' #--' #8' ""#, ' &+' #8' $'?' #8' Y' $>&+"?;+' #1,"+' #8' &!#,(' $" / * ' #'' *) !)') +' $%&' %$?' @&A

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< ' ' (' @&' " 81,")&,' &' $!"&(6')$" ")&' 9$% '&,+' #8' ")&' .)' #1," #8')$'!&,?' +)$--' @&' $' (' ")&?' $,&')&,&@?' $1")#, L&(' $' (' &%2#*&,&(' "#' $(% ' +"&,' ")&' 1+1$-' $' (' $!!1+"#%&(' $")+6' $' (' "#' "$:&' ")&' 1+1$-' 88 "$$" #' +' #8' ")&' E "'&++&+' &9$% '&(' @&8#,&' ")&%' ' $' (' ")$" $--' 3&2#+ " #' +' #8' E "'&++&+' &9$% '&(' '' ")&' .)' #1," #8')$'!&,?' +)$--')&,&$8"&,' @&' "$:&'' '' ")&' ,+" 5&,+#'' ' $' (' ")&' +$ (' 9$% '&,+' +)$--' ,&!& 4&' $' (' $!!#1'" 8#,6' '' %$''&,')&,& 'B$8"&,' %&'N " #'&(6' $--' ")&' &&+')&,&"#8#,&' ,&!& 4$@-&' @?' ")&' +$ (' 9$% '&,+' #,' ")& ,' -&,:+

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< ' ' (' @&' "&'$!"&(')$" $+' <$!$'! &+' %$?' #!!1,' '' ")&' 88 !&' #8' 9' -&,:+' #8' ")&' +$ (' #1,"6' +1!)' <$!$'! &+' +)$--' '#" @&' 8 --&(' 12' V'" -' ")&' 1%@&,' #8' +1!)' 9' -&,:+' @&' ,&(1!&(' "#' *#' -&,:+6' $' (' ")$" +1!)' *#' -&,:+' +)$--')$4&' $--' ")&' .)"+' $' (' 5, 4 -&.&+' $' (' 2&,8#,%' $--' ")&' 31" &+')&,&"#8#,&')$(' $' (' 2&,8#,%&(' @?' ")&' 9' -&,:+6' *)&")&,' $+' -&,:+' #8' ")&' ',#-%&'' #8' ")&' .)' #1," #8')$'!&,?6' #,' #")&,* +&6' 1'" -' '' +)$--' @&' #")&,* +&' 2,#4 (&(' @?' !' #8' 5$,- $%&'' $' (' *)&'' $' (' $+' #8"&'' $+' $'?' '&' #,' %#,&' #8' ")&' 9' -&,:+6' #")&,' ")$'' ")&' *#' -&,:+' "#' @&' !#'" '1&(' $+' $8#,&+$ (6' +)$--' (&6' #,' ,&+ . '6' #,' @&' ,&%#4&(' 8,#%') +' 88 !&' $ -' &&+' $' (' %#-1%&'"+' *) !)' *#1-(')$4&' $!!,1&(' "#' $'?' +1!)' 9' -&,:' #,' 9' -&,:+' 8')&' #,' ")&?')$(' - 4&(' $' (' !#'" '1&(' '' 88 !&6' +)$--' @&' ,&!& 4&(' @?' $' (' @&' $!!#1'"&(' 8#,' #' $")' X+1!)' $")' "#' @&' $(% ' +"&,&(' @?' #'&' #8' ")&' $+"&,+' #8' ")&' +$ (' #1,"[6' $' (' @&' 2$ (' @?' ")&' +1,4 4 ' .' #,' !#'" '1 ' .' 9' -&,:+' '"#' ")&' $,:' #. "#' ")&' ,&(' #8' ")&' !!#1'"$'' H&'&,$-' #8' ")&' +$ (' #1,"6' "#' @&' @?') %' 2-$!&(' "#' ")&' ,&(' #8$'' !!#1'' "#' @&' '" "1-&(' \')&' 1 "#,+' &&' 1'(' !!#1'" ^

&+",$ '' #'' *#,'' -&,:

' ' (' @&' >" 81,")&,' &' $!"&(')$" '#' -&,:' +)$--' @&' $," !-&(' "#' $'?' *#,'' -&,:' #,' E ," ' .' -&,:' #8' ")&' +$ (' #1," $" $'?' %&' @&"*&&'' ")&' 2$++ ' .' #8' ") +' !" $' (' ")&' ,+" 3$?' #8' ' '&9"

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U, #G Z"D/D2E 2# 3"D/ H3 Z2E C2EEDG # 3"D DH #G 2#G " /G D2/E . 3"D =D 4# . > E C/DED#3 B 25DE36 ? #4 / * 3"D I/3"! ** . Z 8) B " H7 5 8 ' > . ! > U #G Z"D/D2E 3 E D&CDG D#3 3 2CC #3 2GG3 #27 +D/E #E

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+D/E #E 3 ' C I 3 # D&DH I 3 # 3"D EDFD/2 H3E . / 4/2#3 #4 2# G 3 ' > E B 25DE36 O6 2 2#G 2& # ' (' 2#G . / H #3 # I #4 3 ' > E B 25DE36 HD/32 # * 333 DE # +D/E #2 E323DE! ' .. HDE! 2#G +D#E #E # . 0 D 3 3"D/D. /D D#2H3DG O6 3"D ? #4aE O E3 &HD77D#3 B 25DE36! O6 2#G Z 3"' 3"D GF HD 2#G (#ED#3 . 3"D /GE C / 3 I 2 2#G D O C /27! D#G (O O #E! # 3" E C/DED#3 +2/7 2 0 D#3 2EED O O7DG! 2#G O6 3"D I 3" / 36 . 3"D E2OD ' "23 3"D EDFD/2 2#G /DECDH3 FD +D/E #E "D/D 5 2.3D/ #2 0 DG E"27 2#G 0 26 2#G 2/D "D/DO6 D O C ZD/DG 2#G 2 I 3" / dDG MOD #4 G I 76 \ I 27 . DGP 3 ' C I 3 # D&DH I 3 # 3"D E2 G H3E! 2#G 27 3"D (72 I EDE! + ZD/E! B 233D/E! 2#G " #4E Z"23E DFD/ 3"D/D # H #32 #DG! 2E (O O EE #D/E # 2#G . / 3"D EDFD/2 2#G /DECDH3 FD (I #3 DE! " /DE! 3DZ2/3/ DE! 2#G +72HDE . ' ' (' "D/D # 2.3D/ EDFD/2776 2#G /DECDH3 FD76 O D#3 #DG 2#G D&C/DEEDG! 2E . I 776 2#G D..DH3 I 2776 2E . 3"D6 "2G ODD# #2 0 DG Z 3"' 3"D 3"D/ (O^ O EE #D/E # 3"D E2 G /DH 3DG H3 C2EEDG # 3"D DFD#3"' 2#G 4"3"' -D2/E . 3"D =D 4# . > E 723D B 25DE36 ? #4 ' 3"D A I /3"N M3"23 E 3 ' E26!P

22# '"%&'" #8'$(("#'$- % O# E

1 ' ' ' ' ' ' ' D/]E

5 ') " ' ,2H O +7D6GD77 I FD/ D * * ' ' ' N ' A 7]DE3 #D! ') " ' GZ2/G +7D6GD77 I FD/ D! ') " ' +" 7 C +7D6GD77 I FD/ D! @ 77 2 0 ' / Z# ' ? #4E3 #! " O 2E / Z# ' ? #4E3 #! " O 2E / Z# ' I /GD/ C! , "# / Z# ' (O C3 #! , "# /]E! " O 2E 2 I 4"2# 2##D/! , EDC"' (72/]! , EDC"' (E3D/! @ 77 2 0 ' (E3D/! @ 77 2 0 ' B /ED (/ ZG6! 7./DG I 3"O6 (/ ZG6! A/2#H E (/ ZG6! ,2 0 DE @ H]E * I #E. /G! @ 77 2 0 ' D2/ #4! , "# 7DE! @ 77 2 0 ' >233 #! @ 77 2 0 ' >D#/6 > 3H"H H]! , "# > CC E7D6! , "# > // H]E! , "# > OO2/G! ,2 0 DE A /ODE , ZD33 + ' , "# ?D#3 I ' I /3 #! @ 77 2 0 ' ? #H"' ' ' ,2 0 DE 2Z/D#HD! >D#/6 B 2E]D76#D! ("2/7DE 2 0 I D7 B DG7D6! @273D/ B 233"DZE! , "# B 233"DZE! D /4D B 7Z2/G! D /4D B Z2/G ' ' 5 * ' B 6D/E! , "# B 6D/E! " O 2E) D23D + ' /3"I /) D23D + ' " O 2E) 2E"! , "#) 2E"! G O I #G +D2C7D! , "# >27 + H H]!) 23"2# D7 + 6#3d + ' ("2/7DE +/ HD! , "# B D/F # +/ ZD/ + ' , "# =D2GD! = H"2/G D//6! ,2 0 DE O OE! " O 2E 7D33D! , "# @263D 7D33D + ' @ 77 2 0 ' d2/G ' ' A/2#H E @%2/#D. /G! ,2 0 DE @" 3D! @ 77 2 0 ' @" 3D! = OD/3 @2/ O2#

1 ' ' 5 * ' ' (2 O O/ G4D!

G O I #G 77D#! ("2/7DE EO6! @ 77 2 0 ' 2H #! = OD/3 2//D33! @ 77 2 0 ' 2&3D/! = OD 3 (7263 #! @ 77 2 0 ' (/ ZD! , "# . B ' A/2#H E 2GD#! @ 77 2 0 ' 77 E3 #! " O 2E , "# A H]7 #! @ 77 2 0 ' @DOE3D/ AE"D/ ! G2 0 ' A 3H"! OD#DdD/ 5 B ' >D#/6 32C7DE A E3D/! , "# /2.3 #! = OD/3 /DD#! = H"2/G 2#]E >2//2GD#! >D#/6 >D O #43 # >2// E! ' ' > ' >D#E7 Z' , , ' " O 2E > I ##6O I #! B 2/3 # > I ##6O I #! 7 52"' , "#E #! ,2 0 DE , "#E #! +D3D/) 2E"! @ 77 2 0 ' = O #E #! >D#/6 A/2#H E = ZD! ' ' > ' H" 7D. D7G , , ' @ 77 2 0 ' " CCD6! 2 0 I D7 I E3 # I /#D/! " /#" 77 @2// #43 #! > D O 6 @277 E! @ 77 2 0 ' 3] #^ E # @2/Z H]! ("2/7DE @23 #! ' ' @ 77 2 0 ' @/ 4"3 , , (, ' ' ' " O 2E O2/3 > I 4"DE (, '

B (2C V

1 3&4#'

(*$,($,-?#' H,&&'*$?6 &',? 5$1- &$-&6)$,-&+ $?'& &$- $?'&6)$,-&+ !)&-%#,&6 E--$% $@?$' E '(&$""6)#%$+ !)&-%#,&)$,-&+ (*$,(+6)$,-&+ $?-#,6 !)$,(#2&,6 E--$% #*(&'6 !)$,(E$"+#'6 R#)' ,#*'& %")6 #@&," 1!:&,6 E--$% 5,#1"6 5$,%&'$+ 5&$,!&6 R#)' H, @@-&6 E--$% : ''&, &',? ,#*+&6 R#)' R$!:+#'6 R#)' &$.&

1 3#,+&"

5&"&, #96 H&#,.& #96 R$%&+ E--$% 3$' &-6)#%$+ 5$:&&, 3$' &-6 (*$,(#96 #@&," #'*$? &$% '+"&,

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R$%&+ #,'&,6)#%$+ 5$.&6 ,&(&, ! '!)6 E R E$""+8#,(6 5&$,+#'6 H&#,.& -4&,6 &+!)6)#%$+ 3?&,6 R#)' !)$,(+#'6)$,-&+ &*+6 H&#,.& %")6 &'>$% %")6 5&"&, #-"6 R#)' '.&,+"&'6 E--$% 1,N -'.6)#%$+ 5"!)&,6 E--$% 5"!)&,6 R$%&+ #1+&'+6 $%1&- 5, #,6 R#)' E) "&6 %&#' E$,'&+6 R#)' 5$ '"&,6)$,-&+ &,.1+#'6 $2"$' "&2)&' ,#1'!&6 !)$,(&$%$,:6 R#)' E;7&+)6 R$%&+ D&,-6 $%1&- ,#*'6 $%1&-)#%$+ ,#*'6 E--$% D&$"+6 5) -2 D ""&,6)#%$+)1"&,6 E--$% #-?'&196)$,-&+ $%+6 H&#,.& #"+*#,")6 E--$% $4&'6 R ",#'.")$,%6 R#)' $4&,+#'6 ,")1, 3,1%N %#'(6

ʻ L̊ ʻ L̊ B ʻ ʻ (2C V

0 #G!ʻ @ʻ ʻ ʻ) DZ 0 2#E!ʻ >D#/6ʻ #472#GE!ʻ ʻ) #
" 0 2Eʻ 2/#D!ʻ ,ʻ Aʻ I /#D33!ʻ ("2/7DEʻ AD#E"2 0 !ʻ @ 77 2 0
2#GDG!ʻ ʻ 3/2H"6!ʻ @ʻ =ʻ @ 77D33!ʻ ʻ) 2E"!
=ʻ = 7D6!ʻ , "#ʻ (CD!ʻ " 0 2Eʻ @/ 4"3!ʻ , "#ʻ I7G4 !ʻ , "#ʻ
@2/G!ʻ @ʻ ʻ * 2ZE #!ʻ ʻ) # ʻ >ʻ ,ʻ "2H]7D ʻ
3 #!ʻ , "#ʻ = & #!ʻ @ʻ @2// #43 #ʻ 5Z5d 0 /!ʻ =ʻ B 7 #D!ʻ , "#ʻ
! E". /G!ʻ , "#ʻ E". /G5 B Z 0 /!ʻ B 233"DZʻ A. #H"ʻ 5 I # /!ʻ , "#ʻ * /2]Dʻ
A7 #H"!ʻ ʻ ʻ 232/G!ʻ D /4Dʻ #E7 D!ʻ @ʻ ʻ +/DE3 #!ʻ
D /4Dʻ , 2G

3 ʻ ʻ = *ʻ ʻ #G #

, "#ʻ G2 0 E #ʻ (ʻ ʻ E22Hʻ / 0 E3/ #4ʻ B ʻ ʻ ($ʻ
ʻ @ 77 2 0ʻ D##D33ʻ 9 ʻ 9 ʻ 2 0 I D7ʻ D/4D/ʻ >ʻ ʻ , "#ʻ
/ Z#Dʻ > ʻ @ 77 2 0ʻ (77 #4Z Gʻ H > ʻ - 7 ʻ @ 77 2 0ʻ
(/ IH"D/ʻ ; ʻ ʻ GZ2/Gʻ 0/2"2 0ʻ * Dʻ /2FDʻ ʻ - ʻ ʻ
ʻ @ 77 2 0ʻ ("/ E3 C"D/ʻ * &ʻ ʻ % A ʻ ʻ , "#ʻ * Z#DEʻ
> ʻ *ʻ ʻ = H"2/Gʻ 77 Eʻ - ʻ ,D/D 0 2"ʻ F2#Eʻ
3 ʻ ʻ 9 ʻ 7D&2#GD/ʻ 277 Z26ʻ ʻ ʻ (ʻ GZ #ʻ
ZD/ʻ = (ʻ ʻ , EDC"ʻ / I3ʻ = *ʻ ʻ , EDC"ʻ >D2/#ʻ
>ʻ 9 ʻ "/ ZD/ʻ IH]7Dʻ >D// #4ʻ % ʻ ʻ = H"2/Gʻ
> H]Eʻ H # ʻ - 7 ʻ /D4 /6ʻ ,2/ 0 2#ʻ ʻ ʻ = H"2/Gʻ
,DZDEE #ʻ 3 ʻ ʻ D /4Dʻ ?# 4"3ʻ 3 ʻ ʻ D /4Dʻ
2 0 0ʻ ; ʻ ʻ ,2 0 DEʻ Zʻ ʻ ʻ , "#ʻ B 277H 33ʻ
ʻ ʻ (ʻ @ 77 2 0ʻ B 233"DZEʻ ʻ - ʻ ʻ ʻ
, "#ʻ B 4 # Dʻ (ʻ ʻ >D#/6ʻ B I##ʻ = 7ʻ ʻ @ 77 2 0ʻ
) 2E"ʻ H ʻ ʻ , #23"2#ʻ ("2/7DEʻ +/ /ʻ @"" ʻ 2 (ʻ ʻ
" 0 2Eʻ = I EED77ʻ ʻ (ʻ E/2D7ʻ " 0 2Eʻ = (ʻ B 233"DZʻ
(7D 0 D#3ʻ @27]D/ʻ 7 ʻ ʻ @ 77 2 0ʻ @27]D/ʻ 3 ʻ ʻ
, "#ʻ @D7H"ʻ 7 ʻ ʻ ʻ /3" I /ʻ @ 7H #ʻ (ʻ ʻ
7D&2#GD/ʻ @ 7k #ʻ 9 ʻ 9 ʻ " 0 2Eʻ @ GZ2/Gʻ ʻ - ʻ ʻ
ʻ ,2 0 DEʻ #GD/3 #ʻ ʻ / G4Dʻ 3/DD3!ʻ 72H]./ 2/E!ʻ @ 77 2 0ʻ > I /E3ʻ
E"C 3D7ʻ ʻ "/ 4 0 /3 #ʻ 3/DD3

3 ʻ ʻ = *ʻ ʻ # (#ʻ ʻ ʻ ʻ ʻ 0 ʻ ?
ʻ @DE3 0 #E3D/ʻ >277

" 0 2Eʻ +/ I3ʻ ʻ , "#ʻ ' 7GH" I /H"ʻ @D 0 0ʻ ʻ ,2 0 DEʻ + 33ʻ
* ʻ , "#ʻ) 23"2#ʻ 2 # 0 / G4Dʻ ʻ - A ʻ ʻ @ 77 2 0ʻ
* I /DGD#ʻ ʻ ʻ , "#ʻ = 4D/Eʻ 0 ? ʻ ʻ = H"2/Gʻ (/ CCEʻ
0 ? ʻ ʻ ʻ /OD/ʻ 9 *ʻ) ʻ >D#/6ʻ 0 CE #ʻ H >ʻ
ʻ = # ʻ ʻ , EDC"ʻ ! ʻ ʻ - * A ʻ

3 ʻ ʻ) ʻ ʻ ʻ = *ʻ 4 L̊ B GG7DED&

" 0 2Eʻ * 2&!ʻ , "#ʻ @4 G!ʻ " 0 2Eʻ > G4] #E #!ʻ ,2 0 DEʻ / FDE!ʻ
2 0 I D7ʻ * Dd D3D!ʻ ʻ ("2C 0 2#ʻ B 2/E"277ʻ B ʻ B 7DEʻ 3/ #4D/!ʻ
2 0 I D7ʻ +7233!ʻ GZ2/Gʻ @ 7 0 /2"2 0 !ʻ B 23" 2Eʻ = ZD!ʻ = H"2/Gʻ @27. /G!ʻ
" 0 2Eʻ D2H"!ʻ >D#/6ʻ I /#D33!ʻ 7 0 #ʻ "D7G #!ʻ A/2#H Eʻ "Z2 3DE!ʻ
A/2#H Eʻ / GD/ C!ʻ , EDC"ʻ > 7GD#ʻ I /#D/!ʻ * 2# D7ʻ ("2/7DEʻ = 4D/Eʻ
>2// E #!ʻ +D3D/ʻ 7 I#3!ʻ D /4Dʻ @27. /Gʻ / 0 E3/ #4!ʻ " 0 2Eʻ #3 33!ʻ
ʻ @ 77 2 0ʻ 273 #E32 ʻ @ ED 0 2#ʻ ʻ @ 77 2 0ʻ]D/!ʻ ("2/7DEʻ
+7 ZGD#!ʻ , "#ʻ) I /ED!ʻ GZ2/Gʻ 27Dʻ 7GD/ !ʻ , "#ʻ 3 I /4DE!ʻ # E

ʻ ʻ L B ʻ ʻ (2C V V

* I /2#3!ʻ #G/DZʻ >D#GD/E #!ʻ " O2Eʻ ʻ ? CCE!ʻ >D#/6ʻ =" GDE!ʻ ʻ @ 77 20ʻ >D#/6ʻ +/ #47D!ʻ >D#/6ʻ D77!ʻ >D#/6ʻ ("2/7DEʻ 3 I /3!ʻ ʻ .. #ʻ @ 7E #!ʻ " O2Eʻ D/2/Gʻ 7/ #43 #!ʻ *2# D7ʻ 2d274D33D!ʻ , "#ʻ @ 77 20ʻ 2#47D6!ʻ ʻ 20 I D7ʻ H 33ʻ (ʻ (72 I GDʻ GZ2/Gʻ H 33!ʻ ,20DEʻ > CD/!ʻ , EDC"ʻ D#520 #ʻ 2702 #!ʻ = H"2/Gʻ A/DD02#!ʻ ʻ GZ2/Gʻ >6GDʻ 2E3ʻ (ʻ 3DC"D#ʻ (&!ʻ #G/DZʻ = 4D/E!ʻ , "#ʻ @ GZ2/G!ʻ " O2Eʻ FDEʻ ʻ " O2Eʻ FDEʻB ʻ " O2Eʻ, "#ʻ I /4 6#D!ʻ @ 77 20ʻ / .. 3"E!ʻ D /4Dʻ > OOE!ʻ GZ2/Gʻ +D//602#!ʻ ("/ E3 C"D/ʻ 72H]D3!ʻ A/DGD/ H]ʻ + 7" 77!ʻ 7D&2#GD/ʻ B 77D/!ʻ B H"2D7ʻ 20O3 #ʻ E3D!ʻ B2/E"277ʻ 2Z/D#HDʻ @D7H"!ʻ ,20DEʻ A I 74D/ʻB ʻ = OD/3ʻ 2/3 #!ʻ = OD/3ʻ * + B ʻ,20DEʻ("2C02#ʻ E" C!ʻ D /4Dʻ 2#4/ G4Dʻ @ 77 20E!ʻ ,20DEʻ (2/CD#3D/!ʻ #3" #6ʻ / I 4"!ʻ A/2#H Eʻ 77D/]D/ʻ DZ #!ʻ = OD/3ʻ@27C 7Dʻ +ʻ / .. 3"ʻ, #DE!ʻ >D#/6ʻ@/ 4"3!ʻ OD #ʻ " O2Eʻ I 77!ʻ ,20DEʻ) EOD3!ʻ GO I #Gʻ (77 D/!ʻ =27C"ʻ 3DFD#E!ʻ " O2Eʻ A/2#H Eʻ =2#DD!ʻ = H"2/Gʻ I /#D77!ʻ , EDC"ʻ +DG7D6!ʻ , EDC"ʻ = H"2/Gʻ @ 77 20Eʻ >D#/6ʻ +DG7D6!ʻ , "#ʻ @2/D!ʻ " O2Eʻ B2// 33!ʻ I]Dʻ /2CCʻ A7 G!ʻ = OD/3ʻ ' 7GD/E"2Zʻ B ʻ ,20DEʻ (I 7FD/ZD77!ʻ >D#/6ʻ (2// #43 #ʻ Z7DE!ʻ GZ2/Gʻ IE"!ʻ *2# D7ʻ (/DEEZD77ʻ ' , ' , ʻ ("/ E3 2#ʻ +20ʻ BD6D/!ʻ +D3D/ʻ " OCE #!ʻ @ 77 20ʻ @ 77E #!ʻ ("2/7DEʻ 27 EO I /6ʻ I 37D/!ʻ , "#ʻ EH"2772E!ʻ = OD/3ʻ @ 77 Eʻ >277!ʻ " O2Eʻ 2772#DD!ʻ @ 77 20ʻ D2H"ʻ ʻ 7 2#ʻ D//2HD!ʻ ("D7ED2!ʻ 2/GD#ʻ = 4D/ʻ) ʻ ,20DEʻ #GD/3 #ʻ Uʻ 9 $ʻ (ʻ ʻ (+ ʻ ("2/7DEʻ >DOOD/3ʻ > ʻ ʻ. ʻ ( ]Dʻ 2#]Dʻ ʻ < ʻ * ʻ ʻ . K ʻ 7 ʻ GZ2/Gʻ @2/Gʻ H2GG #4

1 ʻ ʻ ʻ ʻ) /. 7]

ʻ " O2Eʻ I H]ʻB ʻ @ 77 20ʻ 7OD/3!ʻ ʻ ʻ ʻ ʻ A E3D/!ʻ @ 77 20ʻ C I //D77!ʻ ,20DEʻ > I #3ʻ > 77D6!ʻ , "#ʻ *D6#E!ʻ " O2Eʻ @D77E!ʻ @ 77 20ʻ /2#. /G!ʻ A/2#H Eʻ ?# 4"3Eʻ *2# D7E!ʻ @ 77 20ʻ 7OD/3!ʻ " O2Eʻ ʻ I H]ʻB ʻ ʻ ʻ 20OD/3ʻ 72H]ZD77 A E3D/!ʻ >D#/6ʻ I H]!ʻ +D3D/ʻ I 77 H]!ʻ ("2/7DEʻ @"2 3DE!ʻ = OD/3ʻ +/233!ʻ = OD/3ʻ D202#!ʻ @ 77 20ʻ /H"20ʻB ʻ,2ECD/ʻ CC7D!ʻ, "#ʻ (72/]D!ʻ (ʻ ,ʻ > Z2/G!ʻ , #23"2#ʻ A2//2/!ʻ , "#ʻ @ʻ H"!ʻ , "#ʻ -D77 76ʻ , ' , ʻ ,20DEʻ (CD02#!ʻ 20 I D7ʻ (72/]D!ʻ +" 7 Cʻ *6]DE!ʻ >ʻ OE #ʻ * ZE #!ʻ ʻ @ʻ * ZE #!ʻ @ 77 20ʻ I 33D7!ʻ = H"2/Gʻ +/ DE3!ʻ , "#ʻ * I 4"36!ʻ " O2Eʻ OODʻ 267 /!ʻ " O2Eʻ >2FD/E!ʻ ʻ ʻ , EDC"ʻ B I /H"!ʻ , EDC"ʻ (23D/ʻ @DOO!ʻ " O2Eʻ GZ2/GE!ʻ @ 77 20ʻ D772 /E!ʻ " O2Eʻ ( ]D!ʻ 20 I D7ʻ (I 77D6!ʻ A/DGD/ H]ʻ (6!ʻ ' /72#G ʻ 2/#DE!ʻ , "#ʻ 2]D/!ʻ , "#ʻ (/ EE!ʻ , EDC"ʻ D7G2/3!ʻ =2ZG #ʻ > I #3D/!ʻ , "#ʻ @/ 4"3!ʻ @ 77 20ʻ =DC3 #!ʻ , "#ʻ 267 /!ʻ Aʻ ʻ ' ʻ 267 /

1 ʻ ʻ ʻ ʻ ʻ ʻ% ' &. /G

5&"&,ʻ $,'&?ʻ ($ ʻ E -- $%ʻ &',?ʻ ,$:+2&$,6ʻ ʻ ʻ R$%&+ʻ D '.6ʻ !)$,(ʻ ?(&::&,6ʻ E -- $%ʻ #'"$.16ʻ E -- $%ʻ 5$,:&,6ʻ R#+&2)ʻ 5) -- %#,&ʻ ', ,

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5 ʻ ʻ ("2/7DEʻ / CCʻ ' ʻ ʻ' ʻ, "#ʻ C3 #ʻ / CC!ʻ ʻ ʻ @ 77 20ʻ) DZ3 #ʻ +,

T L ; B (2C V

1 \<a I3"20C3 # E7D .@ 4"3

,20DE "D O27G / , "# - I#4 / 20 ID7 *DFD/D77 / ,

1 (IGOI/6

, EDC" 2/OD/% , "# 2/]D/! , "# D2/! , EDC" A/ E3! 7D&2#GD/ A/ E3! , EDC" >D2G! " O 2E > OO7D! @ 77 20 @ G >I 0 C"/6! 20 ID7 ?DDO7D! ("2/7DE =26! @ 20 DE3 / 0 3"! @ 77 20 @2/#D/

1 I.. 7]

3DC"D# + CZ! 1 D /4D @D77D/ + 7D6

1 I//D6

= H"2/G +D#.3GG 2#3" #6 0 8 0 *= * 7D&2#GD/ B 2HG I42 3/D23"20

1 4; (2/02/3"D#

,20DE = H"2/GE > @ 77 20 @ 77 20E >D#/6 " O 2E (B 23"DZ * H] #E ,

1 *D#O 4"

5 = OD/3 ("! ("20OD/E * , "# >D23 # ><) =' B ## /) N = OD/3 B 6GGD73 # $ D /4D / .. 3" D /4D) 267 / > " O 2E > I 4"DE) GZ2/G @ 77 20E GZ2/G = OD/3E 9 (2C32 # > B B E36# && $, "# (C3# / @ 77 20E) " ("2/7DE 2#]D6 ' " = H"2/G = OD/3E ' " , "# @ 77 20E) ' " = H"2/G @ 77 20E) < > = OD/3 = OD/3E (* $ " O 2E F2#E ' " ,

1 (/ 02/3 D

(7 # B 2H]D#d D \5.) DZ"277! D /4D B 2H]26 I3"D/72#G G 77! > I 4" = ED = EE (/ 02/36! @ 77 20 B I//26 = ED O I#3! , "# 1, :-? * 7D&2#GD/ B 2H]D#d D , , * > I 4" B ; #HD#3 = ED 72E3I7 7 H"! >D#/6 *2F GE # I77 H"! ,20DE A Z7D/ =2GGD/6! ' " = EE (/ 02/36?@, 5 * " & > 5 $ (/ 02/36! 5 * " ,20DE 3DZ2/3 B 2H]D#d D D2. /3"

3D I 3

/ @#G"20 (%Z# H"2D7 #E3O3"D/ 5 #/ 1D/! +" 7 C #E3/I3"D/ * I/2! '# E C" / #E %G27 /2HD 7 A27]72#G! = OD/3 /IHD G

J $ N B ' ' (2C V'

'D&''&"6' H&#,.&' #@&,"+#'' $,!-$?' 'D$? -6' R$%&+' 1!)$'' '
$-!),?+" &6' H&#,.&' 1 +"' ' ' &,,?)#-&6' E -- $%' , . .+' '
$+"' -$,6' #@&,"' #4&'",?' ' $--' ,#8"6' #,+"#,2) '
'5 ""#* &6' $*,&'!&' 3$-.- &+)' ' ' ' ' ' '
'R$%&+' 3$-.- &+)' 'E &+"' H,$'.&6' R#)'' 3&*$,' ' $++#(&6
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&*"#'' I ' $+"-&-$'(' --6')$,-&+' $,'&' ' &")&,' $.$+:6' 5&"&,'
E&((&,@1,'' .V 4 &' #F; 1")4&'6' 3$4 ('6 *' ' #FA' E &+"&,'
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*$ C' $' (' $-+#' ")&' 1%' #8' 8"&&'' % -- #'+' +&4&'')1' (,&('
")#1+$' (' + ')1' (,&(' $' (' 8 8"?' 5#1' (+6' .,$' "&(' @?' #'&
#")&,' !"' 2$++&('>'' ")&' 2,&+&'"' &++ #'' #8' 5$,- $%&'"6' '" "1-&(
% ' ' ' ' (' '3 ' (' # ' '! *$ > '
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$'' 6 6 ' # ' ' '1 '0 ' ' ' ' ' *$ 'C' $' ('
+ ;"&7$22 &(' RV#'+' @?' ") +' !"' .,$' "&(6' +)$--' @&' 81,")&,
$22,#2, $"&(6' 2#G 2/D)&,&@?' $22,#2, $"&(6' $' (' +)$--' @&' ++1&(' $' ('
$22- &(' 8#,' $' (' "#* $,(+'")&' +&4&,$-' V+&+' $' (' 51,2#+&+')&,&$8"&,'
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$+')&,&$8"&,' &92,&++&(

)&,&' +)$--' @&' $22- &(Q6 0 6 QF' 8#,' 4-' &,4 !&+

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122- &+' $8#,&+$ (' ")&,&')$--' $' (' %$?' @&' ++1&(' $' (' $22- &(' $' ?' 1%'
#,' 1%+' #8' #'&?' '#B" &9!&&('.' #1,' % -- #'+' + 9')1' (,&(' 8 8"?B'
& .)"' ")#1+$' (' #'&')1' (,&(' $' (' ") ,"?B8#1,' 5#1' (+' 8#,' $' (' "#* $,(+'
")&' 4-' &,4 !&+')&,& OB$8"&,' %#,&' 2$," !1-$,-?' %&'" #'&(' ' X")$"' +'
"#' +$?6[' $' ?' 1%' #,' 1%+' #8' #'&?' '#" &9!&&('.' '&')1' (,&('
8 8"? 8 4&' ")#1+$' (' "*1')1' (,&(' $' (' "*&'"?' 5#1' (+6' "#' (&8,$?' ")&'
)$,.&' #8' E $.&+' "#' ")&' 88 !&,+6' &$"" &' 6' $' (' #")&,+' #8' +' $>&+"?;+'
-&&"' X '!-1('.' *&'"?B+&4&'' ")#1+$' (' &'' $' (' #?$-' $, '&+6['
8#,' ")&' &,4 !&' #8' ")&' &$,' &' ('.' ")&') ,"?B8 ,+"' 3$?' #8' - '
'&' ")#1+$' (' & .)"')1' (,&(' $' (' ") ,"?B8#1,6' *) !)' +)$--' !#%&' ''
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' - ' '&' ")#1+$' (' & .)"')1' (,&(' $' (' ") ,"?B8#1,6' $' (' "#' (&8,$?'
")&')$,.&+' #8' ")&' E $.&+' #8' 88 !&,+6') 2:&&2&,+6' $' (' &'' #8'
<&++&-+' '' ,('$,?6' $' (' #8' ")&' ,&*+' #8' $4?' ,$'+2#,"+6' $,('
,$8"6' #?+6' $' (' $' :' <&++&-+6' 8#,' '&' &$,6' "#' ")&') ,"?B8 ,+"' 3$?'
#8' - ' '&' ")#1+$' (' & .)"')1' (,&(' $' (' ") ,"?B8#1,' $' (' $' ?'
1%' #,' 1%+' #8' #'&?' '#" &9!&&('.' #1,')1' (,&(' ") ,"?B& .)"'
")#1+$' (' $' (' 8#1,' 521' (+6' "#' (&8,$?' ")&')$,.&' 8#,' ")&' 51,!)$+&' #8'
5,#4 + #'+' $' (' < !"1$-- '.' "#,&+6' "#' ")&') ,"?B8 ,+"' 3$?' #8' - '
'&' ")#1+$' (' & .)"')1' (,&(' $' (' ") ,"?B8#1,' ' $' (' $' ?' 1%' #,' 1%+'
#8' #'&?' '#" &9!&&('.' '&')1' (,&(' 8#1,' ")#1+$' (' $' (' +&4&'"?'
5#1' (+6' "#' (&8,$?' ")&' $-$, &+' #8' ")&' 88 !&,+' $' (' ")&' !#'" '.&'"
92&' !&+' #8' ")&' (% ,$-"?' 88 !&6' "#' ")&') ,"?B8 ,+"' 3$?' #8' - '
'&' ")#1+$' (' & .)"')1' (,&(' $8 (' ") ,"?B8#1,' ' $' (' $' ?' 1%' #,' 1%+'
#8' #'&?' '#" &9!&&('.' *&'"?B#'&' ")#1+$' (' +&4&'')1' (,&(' $' ('
"*&'"?B8 4&' 5#1' (+6' "#' (&8,$?' ")&' $-$, &+' #8' ")&' 88 !&,+' $' (' ")&'
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#8' - ' '&' ")#1+$' (' & .)"')1' (,&(' $' (' ") ,"?B8#1,' $' (' $' ?'
1%' #,' 1%+' #8' #'&?' '#" &9!&&('.' *&'"?B"*#' ")#1+$' (' #'&'
)1' (,&(' $' (' ' '&' 5#1' (+' "#' (&8,$?' ")&' $-$, &+' #8' ")&' 88 !&,+' $' ('
")&' !#'" '.&'" 92&' !&+' #8' ")&' +&4&,$-' ! &'" 8 !' 3&2$,"%&'"+' #8' ")&'
$4?6' "#' ")&') ,"?B8 ,+"' 3$?' #8' - ' '&' ")#1+$' (' & .)"')1' (,&(

Q 6 QF' 8#,' 5,#4 + #'+6' Z!' (""#

Q6 F' 8#,' $-$, &+6' Z!' #8' ")&' (% ,$-"?' 88 !&6' (""#

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CJ' G0 L' CJ' C ' + M' ' + M;' ' N C< ' C ' <O@<<J0C"' 0 /; P'
%C<' G CJ <J' <<C' G ; CJ' C0C<' G CJ <J' CJ' ;<Q<C ' : CJ; ' IE"OD#3E'23
' J< ' G<' + ' 0<;' ' G<' % 0@< ;' CJ' G<' @ C 0C"<C ' / O <C@<;' '
&0;' N <; R;' * Q " / ; P'0;GM<C ;' ' & M< ' ' G<') G0 0 ; ' 3 ' 0;SL
- ' %C<' G ; CJ' <0"G ' G CJ <J' CJ' G0 L' CJ' C ' 8#,'
+ M' ' + M;' ' N C< ' C ' <O@<<J0C"') T<C G <<' G ; CJ' '
G CJ <J' CJ' T<C T ' : CJ; ' ' J< ' G<' + ' 0<;' ' G<' % 0@< ;' @,#$(6' (""# '
CJ' G<' @ C 0C"<C ' / O <C@<;' ' &0;' N <; R;' * Q " / ; P'0;GM<C ;'
$P J ' ' G<') G0 0 ; ' 3 ' ' - ' %C<' G ; CJ' <0"G ' G CU
J <J' CJ' G0 ' CJ' C ' + M' ' + M;' ' N C< ' C ' <O@<<J0C"' '8#,'
7 ' G CJ <J' G0 <0"G ' G ; CJ' ' G CJ <J' CJ' T<C ;0O' V 0@< ; '
: CJ; ' ' ' G<' "<;' ' $ 0 0@< ; ' S P < ; ' CJ' G< ;' <M ' #%&6' (""# '
' <J' 0C' &0;' N <; R;' * Q " / ; P'0;GM<C ;' ' & M< ' ' G<'
) G0 00; ' 3 ' - ' %C<' G ; CJ' <0"G ' G CJ <J' CJ' G0 '
' L' CJ' C ' + ' ' + M;' ' N C< ' C ' <O@<<J0C"') T<C ;0O' ; '8#,'
G ; CJ' C0C<' G CJ <J' CJ' 0Q<' : CJ; ' ' ' G<' "<;' ' $ 0 0@< ;
S P < ; ' CJ' G< ;' <M ' <J' 0C' &0;' N <; R;' * Q " / ; P'0;G ' @,#$(6' (""# '
C<C ;' $P J ' ' G<') G0 0 ; ' 3 ' ' - ' %C<' G ; CJ' <0"G '
G CJ <J' CJ' G0 L' CJ' C ' + M' ' + M;' ' N C< ' C ' Q/ 6 F'8#,'
<O@<<J0C"' 7 ' G CJ <J' CJ1 T<C G <<' G ; CJ' : CJ; ' ' G<' $4 Q' "#,&+6' (""#
: @G ;<' ' * Q " + <;' ' G<' (0'J0C"' CJ' W< 0 ' ' 3 @=;
G ; ' ' ' ' G<') G0 0 ; ' 3 ' ' - ' %C<' G ; CJ'
<0"G ' G CJ <J' CJ' G0 L' CJ' C ' + M' ' + M;' ' N C< ' C ' 6 F'8#,'
<O@<<J0C"' +00 G <<' G ; CJ' ;<Q<C' G CJ <J' : CJ; ' ' J< ' G<' ' X Y'6
,G "<' ' C<T' =;' CJ' M Q<M<C ;' 0C' G<' X J; ' ' G<' 6/ L'
) G0 0 ; ' 3 ' ' - ' %C<' G ; CJ' <0"G ' G CJ <J' CJ' G0 '
L CJ' C ' + M' G ' + M;' ' N C< ' C ' <O@<<J0C"') G0 C<' ;0; '8#,'
G ; CJ' 0Q<' G CJ <J' : CJ; ' ' J< ' G<' ,G "<' ' N<J0@0C<;' CJ' Z
N<J0@ " + <; ' ' G<') G0 0 ; ' 3 ' ' - ' %C<' G ; CJ' <0"G '
G CJ <J' CJ' G0 L' CJ' C ' + M' ' + M;' ' N C< ' C ' <O '
@<<J0C"' 70 ' G ; CJ' G <<' G CJ <J' CJ' <0"G ' : CJ; ' ' J< ' ' C< ;' !,f'
G<' / O <C@<' ' J0Q< ;' * Q " N0;@<" C< ;' +< Q0@<; ' ' G<') G0 ' 4 !&+6' (""# '
0 ; ' 3 ' - ' %C<' G ; CJ' <MG ' G CJ <J' CJ' G0 L' CJ' Q 0 Q/Q '8#,'
C ' + M' ' + M;' ' N C< ' C ' <O@<<J0C"' / 0"G ' G CJ <J' ;<Q<C ' [J0 L'
C<' G ; CJ' <0"G ' G CJ <J' CJ' 0 <0"G ' : CJ; ' ' J< ' G<'
,G "<' ' & ' ' : ' ' % 0@< ;' ' G<' * Q ' CJ' W " N 0C<;'
TG0@G' ;G '" @ M<' 0C' @ ;<' ' : M<C ' J 0C"' G<' X< ' <CJ0C"' C'
G<') G0 0 ; ' 3 ' ' - ' %C<' G ; CJ' <0"G ' G CJ <J' CJ'
G0 ' L' CJ' C ' + M' ' + M;' ' N C< ' C ' <O@<<J0C"' 70Q<' 0 6Q F6' 8#,'
G CJ <J' G0 G <<' G ; CJ' ' G CJ <J' CJ' G <<' : CJ; ' ' - "$,?' 5&'N + #'+' (""#
J< ' G<' ,G "<' ' N0'0 ' :<C;0 C;' CJ' $" T C@<;' TG0@G' ;G '"
@ M<' 0C' @ ;<' ' : M<C ' J 0C"' G<' X< ' <CJ0C"' C' G<') G0 '
0 ; ' 3 ' ' - ' %C<' '0 ; CJ' <0"G ' G CJ <J' CJ' G0 L'
CJ' C ' + M' ' + M;' ' N C< ' C ' <O@<<J0C"') T ' G CJ <J' T<C ' / / 6 Q/F '8#,'
G ; CJ' G <<' G CJ <J' 0J T ' : CJ; ' ' J< ' G<' ,G "<' 4 -' 5&'+ #'7' (""#
' ,0Q0" :<C;0 C;' CJ' $" 0Q C@<;' TG0@G' ;G '" @ M<' 0C' @ ;<' '
: M<C ' J 0C"' G<' X< ' <CJ0C"' C' G<') G0 0 ; ' 3 ' '
%C<' G ; CJ' <0"G ' G CJ <J CJ' G0 ' L' CJ' C ' + M' ' + M;' / 6 F' 8#,'
' N C< ' C ' <O@<<J0C"') T ' G CJ <J' G ; CJ' <0"G ' G CJ <J' ,$'+>>#,"+'$'(' < !"1$-- ' .'#8'
: CJ;' ' J< ' G<' ,G "<' ') C; ;' C' N C G' ' : ' ' %C<' ,##2+6' Z!' (""#]
X< L' ' G<') G0 0 ; ' 3 ' ' - ' %C<' G ; CJ' <0"G ' G CJ <J'
CJ' G0 ' CJ' ' J< ' G<' G< ' ,G "<;' ' G<' , CQ< C@<'
CJ' 20@ "0C"' ') ; ' CJ' ' G<' 7 <0"G ' ' + <;' C' @@ C '
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#8' ")&' ,%?' $'(' ,('$'!&' 3&2$,"%&'"+6' *) !)'+)$--' !#%&' '' !#1,+&' #8' 5$?%&'"' (1, '.' ")&' &$,' &'('.' #'' ")&') ,"?B8 ,+"' 3$?' #8' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8#1,' $'('$'?' 1%' #,' 1,$+' #8' #'&?' '#"' &9!&&('.' '&')1'(,&(' & .)"&&'' ")#1+$'(' "),&&')1'(,&(' 5#1'(+6' "#' (&8,$?' ")&' 92&'!&' #8' !#'4&? '.' #'4 !"+' "#' 9 Q&V' / ' *) !)' +)$--' !#%&' '' !#1,+&' #8' 5$?%&'"' (1, '.' ")&' &$,' &'('.' #2' ")&') ,"?B8 ,+"' 3$?' #8' '&' ")#1+$'(' & .)"')1'(,&('$'('") ,"?B8#1,

' '(' "' ')&,&@?' 27E '&'$!"&(6')$"' #1"' #8' $--' #,' $'?' ")&' (+' #,' 122- &+' $8#,&+$ (' ")&,&' +)$--' $'(' %$?' @&' ++1&(' $'(' $22- &(' $'?' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.' 9' % -- #'+' + 9')1'(,&(' 8 8"?B' 8#1,' ")#1+$'(' & .)"')1'(,&(' $'(' & .)"&&'' 5#1'(+'),&&') -- '.+' $'(' 92&'!&'),&&' $,") '.+6' 8#,' $'(' "#*$,(+' %$ '"$ ' '.' +' $>&+"?;+' $'(' #,!&+' $'(' #")&,' &,4 !&+')&,& 'B$8"&,' %#,&' 2$," N !1-$,-?' %&'" #'&(' ' X")$"' +' "#' +$?6[' $'?' 1,$' #,' 1%+' #8' #'&?' '#"' &9!&&('.'),&&' % -- #'+' #'&')1'(,&(' + 9"?B& .)"' ")#1+$'(' "*#')1'(,&('$'(' + 9"&&'' 5#1'(+' #1,"&&'') -- '.+' $'(' '&' 5&''?6' 8#,' (&8,$? '.' ")&')$,.&' #8' +' $>&+"?;+' $'(' #,!&+' 8#,' &,4 !&' '' ")&' V ' "&(' D '.(#%' #8' ' (' $'(' ' $'(' #'' "$" #'+' @,#$(' X&9!&2" '.' " ,&' D&. %&'"+' &%2-#?&(' '' ")&' &,, "#, $-' 5#++&+N + #'+' #8' ")&' #%2$'?[6' 8#,' ")&' &$,6' 8,#%' ")& , +"' 3$?' #8 ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B"),&&' "#' ")&') ,"?B' 8 ,+"' 3$?' ' ' '&' ")#1+$'('& .)"')1'(,&('$'('") ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&' ' $'('$'?' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.' '&')1'(,&(' "&'' ")#1+$'(' & .)"')1'(,&(' $'('") ,"?B8 4&' 5#1'(+' 8"&&'') -- '.+' $'(' 4&B2&'!&6' 8#,' (&8,$? '.' ")&')$,.&' #8' H&'&,$-' "$88' 88 !&,+' $'(' 88 !&,+' #8' ")&' #+2 "$-+' +&,4 '.' * ")' +' $>&+"?;+' #,!&+' '' ")&' V ' "&(' D '.(#%' #8' ' (' $'(' ' $'(' #'' #,& .'' "$" #'+' X&9!&2" '.' P ' 8#,' ")&' &$,6' 8,#%' ")&' ,+"' 3$?' #8' ' '&' ")#1+$'('& .)"')1'(,&(' $'('") ,"?B"),&&' "#' ")&') ,"?B' 8 ,+"' 3$?' #8' ' '&' ")#1+$'('& .)"')1'(,&('$'('") ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&' F $'(' 2#6' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.' '&"?B8#1,' ")#1+$'('+ 9')1'(,&('$'('"*&'"?B+&4&'' 5#1'(+') ,"&&'') -- '.+' $'(' &4&" 2&'!&' 8#,' (&8,$? '.' ")&')$,.&' #8' ")&' --#*$'!&+' "#' ")&' 2, '! 2$-' 88 !&,+' #8' ")&' +&4&,$-' 51@- !' 3&2$,"%&'"+' '' (' $'(' ' ")&,' 3&21" &+6' -&,:+6' $'(' !#'" '.&'"' 92&'!&+6' 8#,' ")&' &$,6' 8,#%' ")&' ,+"' 3$?' ' ' '&' ")#1+$'('& .)"')1'(,&(' $'('") ,"?B"),&&' "#' ")&') ,"?B8 ,+"' 3$?' ' ' '&' ")#1+$'('& .)"')1'(,&('$'('") ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&' ' $'('$'?' 1%' #,' 1%+' #8' #'&?' ' "' &9!&&('.' -&4&'' ")#1+$'('& .)"')1'(,&(' 5#1'(+' 8#,' (&8,$? '.' ")&')$,.&' #8' &(! '&+' $'(' 1,. !$-' $"&, $-+' 8#,' +' $>&+"?;+' $'(' #,!&+6' 8#,' ")&' &$,6' 8,#%' ")&' ,+"' 3$?' #8' ' '&' ")#1+$'('& .)"')1'(,&(' $'('") ,"?B"),&&' "#' ")&') ,"?B8 ,+"' 3$?' #8' ' '&B")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&' $'(' $'?' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.') ,"?B' "),&&' ")#1+$'(' 8#1,')1'(,&(' $'(' 8 8"&&'' 5#1'(+' '&') -- '.+' $'(' &'B2&'!&6' 8#,' (&8,$? '.' ")&')$,.&' #8' ' +' $>&+"?;+' H$,, +#'+' $"' #%&' $'(' @,#$(6' 8#,' ")&' &$,6' 8,#%' ")&' ,+"' 3$?' ' ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B"),&&' "#' ")&') ,"?B8 ,+"' 3$?' #8' ' '&' ")#1+$'(' & .)"')1'(,&(' $""(' ") ,"?B88 1,6' @#")' 3$?+' '!-1+ 4&' $'(' $'?' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.' 8"&&'' ")#1+$'(' +&4&'')1'(,&(' $'(' "),&&' 5#1'(+' '&"&&'') -- '.+6' 8#, (&8,$? '.

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(&8,$? '.' ")&')$,.&' #8' ")&' #?$-' -"$,?' +?-1%66' 8#,' ")&' &$,6'
8,#%' ")&' ,+"' 3$?' #8' % " ' '&' ")#1+$'(' & .)"')1'(,&(' $'('") ,"?B'
"),&&' "#' ")&') ,"?B8 ,+"' 3$?' #8' - ' '&' ")#1+$'(' & .)"')1'(,&('
$'(' "8& ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&' $'(' $'?' 1%' #,' 1%+' #8' -# ++ ' ++'
#'&?' # 3 &9!&&('.' '&')1'(,&(' $'(' #'&' ")#1+$'(' "),&&')1'(,&('
$'(' & .)"&&'' 5#1'(+') ,"&&'') -- '.+' $'(' *#B2&'!&6' 8#,' (&8,$? '.'
")&')$,.&' #8' < #-1'"&&,' #,2+' '' ")&' V' "&(' D '.(#%' #8' '
'$'(', ' 8#,' ")&' &$,6' 8,#%' ")&' ,+"' 3$?' #8' % " ' '&'
")#1+$'(B' & .)"')1'(,&(' $'(' ") ,"?B"),&&' "#' ")&') ,"?B8 ,+"' 3$?' #8'
- ')&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8#1,6' @#")' 3$?+'
'!-1+ 4&' $'(' $'?' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.' &4&'B' 6 F' 8#,'
"&&'' ")#1+$'(' 8 4&')1'(,&(' 5#1'(+6' 8#,' (&8,$? '.' ")&')$,.&' #8' 9!)&C1&,' &&+'
9!)&C1&,' &&+' '' ' '12#'' ++1&+' "#' @&' %$(&' 8#,' ,%?' ,%?7+& 4:Af
&,4 !&+6' 8#,' ")&' &$,' 8,#%' ")&' ,+"' 3$?' #8' % " ' '&' ")#1+$'(' U7$"#'
& .)"')1'(,&(' $'(' ") ,"?B"),&&' "#' ")&') ,"?B8 ,+"' 3$?' #8' - '
'&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&'
$'(' $'?' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.' '&')1'(,&(' $'(' I6 '8#,'
' '&"&&'' ")#1+$'(' 5#1'(+6' 8#,' (&8,$? '.' ")&')$,.&' #8' ")&' 5$?' #8'
H&'&,$-' 8- !&,+' '' +' $>&+"?;+' #,!&+6' '#"' @& '.' #-#'&-+' #8'
&. %&'"+A' 8#,' ")&' &$,6' 8,#%' ")&' ,+"' 3$?' E% " ' '&' ")#1+$'('
& .)"')1'(,&(' $'(' ") ,"?B"),&&' "#' ")&') ,"?B8 ,+"' 3$?' #8' - '
'&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&'
$'(' $'?' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.' .)"?B+ 9' ")#1+$'(' 6### ' 8#,'
5#1'(+' 8#,' (&8,$? '.' ")&')$,.&' #8' 1--' 5$?' 8#,' &(1!&(' $'(' -&"7&(&88 !&,+'
&" ,&(' 88 !&,+' #8' +' $>&+"?;+' #,!&+6' 8#,' ")&' &$,6' 8,#%' ")&' ("#
,+"' 3$?' #8' % " ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B"),&&'
"#B' ")&') ,"?B8 ,+"' 3$?' #8' - ' '&' ")#1+$'(' & .)"')1'(,&(' $'('
") ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&' $'(' $'?' 1%' #,' 1%+' #8' #'&?' D?C MMM@,' 8#,'
'#"' &9!&&('.' 9')1'(,&(' $'(' ") ,"?B"*#' ")#1+$'(' 5#1'(+6' 8#,' $-8'5$?6' (""#' 6
(&8,$? '.' ")&')$,.&' #8' $-8' 5$?' $'(' -"$,?' --#*$'!&+' "#'
&(1!&(' $'(' &" ,&(' 88 !&,+' #8' +' $>&+"?;+' $'(' #,!&+6' 8#,' ")&'
&$,' 8,#%' ")&' ,+"' 3$?' #8' R2' ' '&' ")#1+$'(' & .)"')1'(,&(' $'('
") ,"?B"),&&' "#' ")&') ,"?B8 ,+"' 3$?' #8' - ' '&' ")#1+$'(' & .)"'
)1'(,&(' $'('") ,"?B8#1,6' @#")' 3$?+' '!-1+ 4&' $'(' $'?' 1%' #,' 1%+' + 6Q # 8#,'
#8' #'&?' '#"' &9!&&('.' .)"?B+ 9' ")#1+$'(' 8#1,')1'(,&(' $'(' & .)"?'7#77&,+' #8
5#1'(+6' 8#,' (&8,$? '.' ")&')$,.&' #8' $-8' 5$?' $'(' &(1!&(' --#* N (+@$'(&(' #N
$'!&+' "#' 88 !&,+' #8' (+@$'(&(' #,& .'' #,2+6' #8' 5&'+ #'+' "#' *#1'(&(' ,& .'' #,2+6' (""#']
#,& .'' 88 !&,+6' $'(' #8' --#*$'!&+' "#' ")&' E (#*+' $'(') -(,&'' #8'
(&!&$+&(' #,& .'' 88 !&,+6' 8#,' ")&' &$,6' 8,#%' ")&' ,+"' 3$?' #8' % " '
'&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B"),&&' "#' ")&') ,"?B8 ,+"' 3$?'
#8' - ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B8#1,6' @#")' 3$?+'
'!-1+ 4&' $'(' $'?' 1%' #,' 1%+' #8' #'&?' '#"' &9!&&('.' '&' QO6 IQQF' 8#,'
)1'(,&(' 8#,"?B8 4&' ")#1+$'(' ' '&')1'(,&(' $'(' 8#,"?B8#1,' 5#1'(+6' 8#,' 5&'+ #'+' "#' E (#*+6' (""#'
(&8,$? '.' ")&')$,.&' #8' 5&'+ #'+' "#' @&' 2$ (' "#' ")&' E (#*+' #8'
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) ,"?B8 ,+"' 3$?' #8' - ' '&' ")#1+$'(' & .)"')1'(,&(' $'(' ") ,"?B'
8#1,6' @#")' 3$?+' '!-1+ 4&' $'(' $'?' 1%' #,' 1%+' #8' #'&?' '#"' #6+ '8#,'
&9!&&('.' '&')1'(,&(' +&4&'"?' ")#1+$'(' 8 4&')1'(,&(' $'(' + 9"&&''
5#1'(+6' 8#,' (&8,$? '.' ")&')$,.&' #8' --#*$'!&+' #'' ")&' #%2$++ #'$"&'
+"6' #8' --#*$'!&+' $+' #8' +' $>&+"?;+' #?$-' V1'"?6' $'(' #8'
5&'+ #'+6' H,$"1 " &+6' $'(' --#*$'!&+' "#' 88 !&,+' 8#,' E #1'(+6' 8#,' ")&'
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'$'(' 0<2 +&4&'')1'(,&(' $'('82,"?B+,9' 5#1'(+' '&') -- '.+' $'(' *#B2&'!&6
* * '"# 8#,'(&8,$? '.'")&')$,.&' #8' $'(' 0 * *' #+2 "$-+6 #8'")&'
+" Q 'B5&'+ #'&,+' #8'")#+&' +"$@- +)%&'"+6 $'(' #8'")&' 1"B5&'+ #'&,+' #8'
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"#'+' ''51@- !' 2&'!&6 8#,'(&8,$? '.'")&'B)$,.&' #8' --#*$'!&+6 #%2&'+$"#'+6 $'('
3&2$,"%&'"+6 %#-1%&'"+6 ''")&' $"1,&' #8' 12&,$''1$"#''#,' &",&(' --#*$'!&+6
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/60 F' 8#,' ") ,"?B8#1,6 @#")' 3$?+' '!-1+ 4&' $'(' $'?' 1%' #,' 1%+' #8' #'&?'
9!)&C1&,' &&+' '#" &9!&&('.' *&-4&'")#1+$'(' 8 4&')1'(,&(' 5#1'(+6 8#,'(&8,$? '.'
12#'' !&,"$ '' ")&')$,.&' #8' 9!)&C1&,' &&+' 12#'' ++1&+' "#' @&' %$(&' 8#,' '#'B
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#!$-' -"$6 $'(' 8#,' ")&' --#*$'!&+' $'(' 5&'+ #'+' "#' 88 !&,+' $'(' &''
(""# #8'")&' &.1-$,'$'(' #!$-' -"$6 8#,'")&' &$,6 8,#%'")&' ,+" 3$?' #8'
! ")#1+$'('& .)")1'(,&('$'('") ,"?B"),&&' "#'")&') ,"?B8 ,+"
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5$?' $'(' 5&'N 8"&&'') -- '.+' $'(' #1"Bc_&'!&6 "#'(&8,$?'")&' 92&'!&' #8'")&' $-8'
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% ++$, $"6 (""# --#*$'!&+6 $-+#' 8#,'")&' 5&'+ #'+' #8' E (#*+' #8' #%% ++$, $" 88 !&,+6
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6I I F' 8#,' X")$" +' "#' +$?6[$'?' 1%' #,' 1%+' #8' #'&?' '&" &9!&&('.' &4&'"?B'
,('$'!&' $" #'&' ")#1+$'(' ' '&')1'(,&('$'(' ' '&"?B+ 9' 5#1'(+6 8#,'(&8,$? '.' ")&'
")&' 5 $ Z!' $-$, &+' "#' $+"&,' H&'&,$-' $'(")&' 2, '! 2$-' 88 !&,+' $'(' -&,:+'
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+"$@- +)%&'"+ʻ #8ʻ ")&ʻ 88 !&ʻ #8ʻ ,('$'!&ʻ $"ʻ ")&ʻ #%&ʻ "$" #'+6ʻ 8#,ʻ #%&6 $1"#ʻ
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")&ʻ +"$@- +)%&'"+ʻ #8ʻ ")&ʻ 88 !&ʻ #8ʻ ,('$'!&ʻ $"ʻ ")&ʻ 1"ʻ "$" #'+ʻ 'ʻ
, ʻ $'(ʻ #,& .'ʻ "$" #'+6ʻ 8#,ʻ ")&ʻ &$,ʻ '&ʻ ")#1+$'(ʻ & .)"ʻ
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&$,ʻ '&ʻ")#1+$'(ʻ & .)"ʻ)1'(,&(ʻ $'(ʻ ") ,"?B"),&&G 8#1,ʻ $'(ʻ$'?ʻ 6 ʻ8#,ʻ+1Bʻ
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'"&'(&'!&ʻ#8ʻ ,('$'!&ʻ E#,:+ʻ $'(ʻ &2$,+ʻ 'ʻ ʻ ʻ, ʻ
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'& ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B8#1,6 $'(' ")$" ")& +$ (' 1%'
@& ++1&(' $'(' 2$ (' * ")#1" $'?' && #,' #")&,' 3&(1!" #'' *)$"+#&4&,'
$'(' $'?' 1%' #,' 1%+ #8 #'&?' '#" &9!&&('.' *&'"?B"*# ")#1N
+$'(' 5#1'(+6 "# (&8,$? ")& 92&'!& #8 ")& #1'(- '.' #+2 "$-' ''
' " '"# ")&) ,"?B8 ,+" 3$? #8 '& ")#1+$'(' & .)")1'(,&('
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#'&?' '#" &9!&&('.' '&"&&'' ")#1+$'(' +9)1'(,&(' $'(' ' '&
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")& 1'$" !' 3&2$,"%&'6 $'(' ")&),&& H&'&,$-' #+2 "$-+ $""$!)&(6
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")#1+$'(' $'(' 8#,"?B+ 9' 5#1'(+6' "#' (&8,$?' ")&' 92&'!&' #8' ")&' &%$-&'
,2)$'' #1+&' '' "#' ")&') ,"?B8 ,+'' 3$?' #8' ' '&
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* ' #!:' #+2 "$-6' "#' ")&') ,"?B8 ,+'' 3$?' #8' ' '&'
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!&&(' .' 4&'")#1+$'(' 5#1'(+6' "#' (&8,$?6' "#' ")&') ,"?B8 ,+" 3$?' #8'
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'!1,,&(' '' !$,,? ' .' #'' $'(' !#%2-&" ' .' !&,"$ '' '&*' #$(+' '' ")&'
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* ")#1" $'?' &&' #,' #")&,' 3&(1!" #'' *)$"+#&4&,' $'(' $'?' 1%' #,'
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#8' ")&' &64#!$" J` ' #8' @ +' 5$"&'"' $'(' $'?' 1%' #,' 1%+' #8' #'&?'
'#" &9!&&(' .' '&' ")#1+$'(' + 9')1'(,&(' 5#1'(+6' "#' ,&2$?' "#'
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D ' .' ' ")&') ,(' X)$2"&,' Q[6' "#' ")&' #'+#- ($"&(' 1'(6'
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-&,:+' #8' ")&' #1,"' #8')$@!&,?' '' ' $'(' *) !)' 51,!)$+&')$+'
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V+!6' '"&'"6' 8 51,2#+#' *)$"+#&4&,' #")&,' ")$'' ")&' V+&+6' '"&'"+6' $'('
51,2#+&+' @&8#,&' %&'" #'&(6' #,' 8#,' ")&' #")&,' 5$?%&'"+' (,&!"&(' "#' @&'
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+)$--' @&' (1-?' #@+&,4&(' '' ")&' 22- !$" #'' #8' ")&' +$ (' $-8' 5$?' X")$"
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,&C1 ,&(' '' ")$" &)$-8' @?' +' $>&+"?;+' E$,,$'"+' (,&!" ' .' ")&'
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,&!& 4&' $'?' 5$," #8' ")&' +$%&' *)#' *$+' 1'(&,' ")&' .&' #8' 9"&&''
&$,+' $" ")&' %&' *)&'' ")&' &. %&'"6' ,##26' #,' #%2$'?' '' *) !)'
)&' +&,4&(' *$+' ,&(1!&(' ")$" '#' 5&,+#''+)$--')$4&' #,' ,&!& 4&' $'?' 5$,"
#8' ")&' +$%&' *)#' ((' '#" (#' $!"1$-' &,4 !&' '' +#%&' &. %&'"6' $""$N
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#8ʿ - +ʿ $>&+"?ʿ @&?#'(ʿ ")&ʿ &$+6ʿ #,ʿ 1'(&,ʿ $'?ʿ #")&,ʿ H#4&,'%&'"6ʿ
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* ")ʿ ")&ʿ '&ʿ $''1$-ʿ %#-1%&'"+ʿ #8ʿ ")&ʿ 4 -ʿ 5-$!&ʿ #,ʿ %2-#?%&'"6ʿ
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$>&+"?ʿ @&?#'(ʿ ")&ʿ &$+6 #,ʿ 1'(&,ʿ $'?ʿ #")&,ʿ H#4&,'%&'"6 +)$--ʿ
)$4&ʿ #,ʿ ,&!& 4&ʿ $'?ʿ 5$," #8ʿ ")&ʿ +$%&ʿ 8#,ʿ $'?ʿ %&ʿ (1, '.ʿ *) !)ʿ)&ʿ
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-$*81-ʿ 8#,ʿ ")&ʿ 5$?%$+"&,ʿ H&'&,$-ʿ "#ʿ ++1&ʿ ")&ʿ $-8ʿ 5$?ʿ #,ʿ $'?ʿ
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")&%6 "),#1.)ʿ ")&ʿ &!,&"$,?ʿ $" E$,6 @1" +1!)ʿ 5&,% ++ #'ʿ "#ʿ @&ʿ
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$>#,+A' &,>&$'"+6' #,2#,$-+6' #,' 5, 4$"&+' '' ")&' H&'&,$-' #,' #!$-'
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$'(' " +' &92&(&'" ")$" $--' +1!)' 5&,+#'+' +)#1-(' @&' '(&%' 8 &('] &' 5&,+#'+' !#'
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$22,#2, $"&(' @?' ")&' +$ (' !" 8#,' ")$" 51,2#+&6' #,' '' ")&' ,&!& 4 ' .' #,' #'&?' 8#,' ")&'
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2, $"&(' 8#,' +1!)' $-8' 5$?6' * ")#1" ,&C1 , ' .' #,' "$: ' .' ")&' +$ (' $")+6' $-8' 5$?6' * ")N
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8,#%ʻ ")&ʻ #%% ++ #'&,+ʻ #8ʻ "$%2+ʻ $!&'!&ʻ 8#,ʻ ")$"ʻ 51,2#+&6ʻ *) !)ʻ
+)$--ʻ @&ʻ +1@+ +" '.ʻ 'ʻ 8#,!&ʻ $'(ʻ 1',&4#:&(ʻ $"ʻ ")&ʻ %&ʻ #8ʻ +1!)ʻ 4&'(N
'.ʻ #,ʻ (&$- '.ʻ $'(ʻ 8ʻ $'?ʻ 5&,+#'ʻ #")&,ʻ ")$'ʻ +1!)ʻ 3 +", @1"#,ʻ #,ʻ 1@B
3 +", @1"#,ʻ $+ʻ $8#,&+$ (ʻ +&--ʻ #,ʻ #88&,ʻ 8#,ʻ $-&ʻ $'?ʻ <&--1%6ʻ 5$,!)N
%&'"6ʻ #,ʻ 5$2&,6ʻ +"$%2&(ʻ #,ʻ %$,:&(ʻ * ")ʻ $'?ʻ "$%2ʻ #,ʻ $,:6ʻ (&'#" '.ʻ
#,ʻ 21,2#," '.ʻ "#ʻ (&'#"&ʻ $'?ʻ "$%2ʻ 31"?6ʻ #,ʻ +)$--ʻ &9!)$'.&ʻ $'?ʻ +1!)ʻ
+"$%2&(ʻ <&--1%6ʻ 5$,!)%&'"6ʻ #,ʻ 5$2&,ʻ 8#,ʻ $'?ʻ #")&,ʻ +"$%2&(ʻ <&--1%6ʻ
5$,!)%&'"6ʻ #,ʻ 5$2&,6ʻ #,ʻ 8#,ʻ $'?ʻ #")&,ʻ ," !-&ʻ #,ʻ) '.6ʻ * ")#1"ʻ)$4N
'.ʻ (1-?ʻ #@"$ '&(ʻ $'(ʻ)$4 '.ʻ 'ʻ 8#,!&ʻ +1!)ʻ !&'!&ʻ $+ʻ $8#,&+$ (6ʻ
$1")#, L '.ʻ) %ʻ 'ʻ ")$"ʻ &)$-87 #,ʻ 'ʻ #,ʻ $"ʻ $'?ʻ #1+&6ʻ)#26ʻ #,ʻ 5-$!&ʻ
'#"ʻ +2&! 8 &(ʻ $'(ʻ (&+!, @&(ʻ 'ʻ $'?ʻ +1!)ʻ !&'!&ʻ $+ʻ $8#,&+$ (ʻ .,$'"&(ʻ
"#ʻ) %6ʻ)&ʻ +)$--B 8#,ʻ &4&,?ʻ +1!)ʻ 88&'!&ʻ 8#,8&"ʻ ")&ʻ 1%ʻ #8ʻ *&'"?ʻ
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5&'$-"?ʻ #8ʻ *&'"?ʻ 2#1'(+6ʻ $'(ʻ "ʻ +)$--ʻ ")&,&12#'ʻ $22&$,ʻ ")$"ʻ $'?ʻ
"$%2ʻ #,ʻ "$%2+ʻ %2,&++&(ʻ #'ʻ $'?ʻ +1!)ʻ <&--1%6ʻ 5$,!)%&'"6ʻ #,ʻ 5$2&,ʻ
*) !)ʻ +)$--ʻ)$4&ʻ @&&'ʻ +#ʻ +#-(ʻ #,ʻ &9!)$'.&(6ʻ #,ʻ #88&,&(ʻ 8#,ʻ $-&ʻ #,ʻ
&9!)$'.&(6ʻ *$+ʻ #,ʻ *&,&ʻ 8$-+&6ʻ 8#,.&(6ʻ #,ʻ !#1'"&,8&"ʻ $-")#1.)ʻ ")&ʻ
+$%&ʻ +)$--ʻ '#"ʻ)$4&ʻ @&&'ʻ +#ʻ $--&.&(ʻ 'ʻ ")&ʻ '8#,%$" #'ʻ #,ʻ 5-&$(ʻ '.6ʻ
")&'ʻ $'(ʻ 'ʻ +1!)ʻ $+&ʻ ")&ʻ +$ (ʻ 5&'$-"?ʻ +)$--ʻ @&ʻ (#1@-&(6ʻ $'(ʻ R1(.N
%&'"ʻ +)$--ʻ @&ʻ . 4&'ʻ$.$ '+"ʻ ")&ʻ 88&'(&,6ʻ 8#,ʻ ")&ʻ 1%ʻ #8ʻ #,"?ʻ 5#1'(+6ʻ
$'(ʻ ")&ʻ +$ (ʻ +2&! $-ʻ $""&,ʻ +)$--ʻ @&ʻ +"$"&(ʻ 'ʻ +1!)ʻ R1(.%&'"ʻ $+ʻ ")&ʻ
$1+&ʻ #8ʻ +1!)ʻ '!,&$+&ʻ #8ʻ 5&'$-"?>ʻ $'(ʻ 8ʻ #'ʻ $'?ʻ +1!)ʻ 5,#!&&(ʻ '.ʻ
$'?ʻ ++1&ʻ +)$--ʻ @&ʻ ", &(ʻ @?ʻ $ʻ R1,?ʻ 'ʻ *)ʻ !)ʻ ")&ʻ +&-- '.ʻ #,ʻ &9!)$'. '.6ʻ
#,ʻ #88&,ʻ '.ʻ 8#,ʻ $-&ʻ #,ʻ &9!)$'.&6ʻ #8ʻ +1!)ʻ <&--1%6ʻ 5$,!)%&'"6ʻ #,ʻ 5$2&,6ʻ
*")ʻ $'?ʻ "$%2ʻ #,ʻ "$%2+ʻ ")&,&#'6ʻ +)$--ʻ @&ʻ 'ʻ C1&+" #'6ʻ +1!)ʻ R1,?ʻ
+)$--ʻ @&ʻ ,&C1 ,&(ʻ "#ʻ +$?ʻ *)&")&,ʻ +1!)ʻ "$%2ʻ #,ʻ "$%2+ʻ *$+ʻ #,ʻ *&,&ʻ
8$-+&6ʻ 8#,.&(6ʻ #,ʻ !#'"&,8&"ʻ #,ʻ '#"ʻ 5,#4 (&(ʻ $-*$?+6ʻ ")$"ʻ '#") '.

! "#$"%# #&' '(' '

)&,& '' !#'"$ '&(' +)$--' &9"&'(' "#' &9&%2"' $'?' 5&,+#'' 8,#%' ")&' -&.$-' #') '.'
#'+&C1&'!&+'#8'+&-- '.6' 1""&, '.6' #,')$4 '.' '' 2#++&++ #'' $'?' <&--1%6
5$,!)%&'"6' #,' 5$2&,' * ")' $'?' 8$-+&6' 8#,.&(6' #,' !#1'"&,8& '' "$%2' #,' 8, !#'+&BA'
"$%2+' ")&,&#'6' :'#* '.' ")&' +$%&' "#' @&' 8$-+&6' 8#,.&(6' #,' !#1'"&,8& "6' \ID#HDE' #8'
8' +1!)' D'#*-&(.&' +)$--' @&' (1-?' 2,#4&(' '' $'?' !, % '$-' 5,#+&!1" #'' I33D/ #4'
#,' 5,#!&&('.' $.$ '+"' +1!)' 5&,+#'' 8#,' $'?' +1!)' 88&'!&' +"$' 2+

<' 5,#4 (&(' $-*$?+6' $'(' @&' ' &'$!"&(')$"' ' +)$--' @&' -$*81-' 8#,A E3 '+D/E #E'
$'?' 5&,+ 7' &%2-#?&(' "#' 2,&2$,&6' *, "&6' #,' '.,#++' $'?' 3&&(' #,' 'B' &%2-#?&(' "#
",1 &'' -$@-&' "#' "$%2' 31"?' "#' !)$,.&')+' %2-#?&,' *")' ")&'
%#1'' #8' ")&' "$%2' #,' "$%2+' %2,&++&(' #'' ")&' <&--1%6' 5$,!)B' &%+4 7'
%&'"6' #,' 5$2&,' 12#'' *) !)' +1!)' 3&&(' #,' '+",1%&'' +)$--')&' *, ""&'' 3'+"$%2'
#,' '.,#++&(6' * ")#1")$4 '.' #@"$ '&(' $'?' +1!)' !&'!&' $+' $8#,&+$ (' 31"?
"#' 4&'(' #,' (&$-' '' "$%2+

<' '(' @&' ' &'$!"&(6')$"' &4&,?' 5&,+#'' *)#+)$--' @&' -!&'+&(' HD#ED 5'
1'(&,' ")&' 1")#, "?' #8' ") +' !' "#' (&$-' '' * ' ' ' ' " ' + ' '
2$ '"?' '' D#%$'' $2 "$-' ' ! ' ' ' ' ' ')
$'(' #8' $' 2,#2&,' $'(' ' (' ' * ' ' 9* SJ'
5-$!&' W' ")&' 1"+ (&' #8' ")&' ,#'' ' ') ' ' ' ' ' ' ' 3 ' '
*) !)')&' +)$--' @&' -!&'+&(' "#' (&$-' '' "$%2+6' $'(' +#' ")$"' ")&' +$%&' 9 '
($-f' @&' $"' $--' %&+' 2-$ '-?' $'(' (+" '!"-?' 4+@-&' $'(' -&. @-&6' ")&'
),+"$'' $%&' $'(' 1,'$%&' #8' +1!)' -!&'+&(' 5&,+#'' $"' 81--' &'.")6'
"#.&")&,' *")' ")&' E#,(+6' \' !&'+&(' "#' +&--' "$%2+6^' $'(' +1!)'
5&,+#'' +)$--' !#'" '1&' +1!)' $%&+' $'(' E#,(+' +#' 2$ '"&(' $+' $8#,&+$ ('
(1, '.' $--' ")&' %&' ")$"')&' +)$--' !#'" '1&' -!&'+&(' $+' $8#,&+$ (' ' $'(' +D#2736!'
8' $'?' 5&,+#'' -!&'+&(' $+' $8#,&+$ (' +)$--' '&.-&!' #,' #%' "#' !$1+&'
+1!)' $%&+' $'(' E#,(+' "#' @&' +#' 2$ '"&(' $+' $8#,&+$ (6' #,' +)$--' '&.-&!'
#,' #%' "#' !#'" '1&' ")&' +$%&' +#' 2$ '"&(' $!!#,('.' "#' ")&' 3 ,&!" #'+'
#8' ")+' !"6')&' +)$--' 8#,8&' &'' 5#1'(+' 8#,' &4&,?' +1!)' 88&'!&] +/ FE '2E' 3 '
5,#4 (&(' $-*$?+6' ")$"' '' ")&' $+&' #8' +&4&,$-' 5&,+#'+' -!&'+&(' $+' +2/3#D/E!'
$8#,&+$ (' '' #2$,"'&,+) 2' ' +)$--' @&' +188 !&'' 8' ")&'),+"$'' $%&'
$'(' 1,'$%&' #8' '&' #'-?' #8' +1!)' 5&,+#'+' @&' 2$ '"&(' '' %$''&,'
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<' '(' @&' ' &'$!"&(')$"' 8' $'?' 5&,+#'' +)$--' *, "&6' 2$ '"6' #,' +D#2736' #'
%$,:6' #,' +)$--' !$1+&' #,' 2,#!1,&' "#' @&' *, ""&'6' 2$ '"&(6' #,' %$,:&(6' I#7 HD#EDG'
#,' +)$--' 2&,%' #,' +188&,' "#' !#'" '1&' *, ""&'6' 2$ '"&(6' #,' %$,:&(6' +D/E #E'
12#'' $8"?' 5$," #8')+' #1+&6')#26' #,' 5,&% +&+6' &")&,' '' ")&' '+(&' C2 #3 #4' #'
#,' #'' ")&' 1"+ (&' ")&,&#86' #,' 12#'' $'?' #$,(' #,' $'?' $"&, $-' *)$"N 3"D/' " CE'
&4&,' &92#+&(' "#' 21@- !' <&*6' $'(' *)&")&,' ")&' +$%&' +)$--' #,' +)$--' '#' 2#6' @ /GE'
@&' $88 9&(' "#' +1!)' #1+&6')#26' #,' 5,&% +&+6' $'?' E#,(' #,' E#,(+' OC /3 #4'
*) !)' +)$--' %2#," #,' + .' 8?6' #,' @&' '"&'(&(' "#' %2#," #,' + .' 8?6' ")$"' 3"23' 37 D6' 2/D'
+1!)' 5&,+#'' +' $'<&'(#,' #8' #,' 3&$-&,' '' "$%2+6' +1!)' 5&,+#'' '#' *D27D/E' #
@&' .' -!&'+&(' "#' (&$-' '' "$%2+' 1'(&,' ")&' 1")#, "?' #8' ") +' !"6' $'(' 32OCE
'#8'@&' .' $' 3 +", @1"#,' #,' 1@B3 +", @1"#,' #8' "$%2+' (1-?' $22#' '"&('
$+' $8#,&+$ ([')&' +)$--' 8#,8&' &'' 5#1'(+' 8#,' &4&,?' 3$?' +1!)' 88&'!&'
+)$--' @&' !# 2% ""&(' #,' !#'" '1&(' K

<' '(' @&' ' &'$!"&(6')$"' ' +)$--' @&' -$*81-' 8#,' $'?' "$" #'&,' #,' 77 Z2#HD' 3 '
#")&,' 5&,+#'' *)#6' '' ")&' ,&.1-$,' #1,+&' #8') +' ,$(&' #,' 1+ '&++6' +$S2+ '")&'
@&8#,&' $#(' $"' ")&' %&' #8' ")&' 2$++ '.' #8' ") +' !"6' +)$--')$4&' @&&' $' C EEDEE #' .'
<&'(#,' #8' "$%2+6' $'(' *)#$"' ")&' %&' #8' ")&' 2$++ '.' #8' ") +' !"' D#G /E' 23
+)$--

3"D' OD' .' 3"D' C2EE #4' ' .'3" E' H3

+)$--')$4&' ' E+' 5#++&++ #'' 8#,' ")&' 51,2#+&' #8' $-&' $'?' +"$%2&(' <&--1%6' 5$,!)%&'"6' 2,' 5$2&,' *) !)' +)$--' '#'' @&' '' $'?' $''&,' +2# -&(' #,' ,&'(&,&(' 1+&-&++' #,' 1'8'' 8#,' ")&' 51,2#+&' '"&'(&(6' "#' @, '.' #,' +&'(' ")&' +$%&' "#' ")&')&$(' 88 !&' 8#,' "$%2+' '' / * ' #,' . " ' $"'$'?' %&' * ") ''),&&' $-&'($,' #'")+' '&9'' $8"&,' ")&' #%%&'!&%&''' #8' ") +' !'' ' $'(' '' +)$--' @&' -$*81-' 8#,' ")&' #%N % ++ #'&,+' #8' "$%2+6' #,' $'?' 88 !&,' #8' "$%2' 31" &+' (1-?' $1")#, L&(' '' ")$'' &)$-8' "#' ,&!& 4&' ")&' +$%&6' $'(' "#' 2$?' "#' ")&' 5&,+#'' @, '. '. #,' +&'('.' ")&' +$%&' ")&' %#1''' #8' ")&' "$%2' 31"?' ")&,&#'6' (&(1!"B' '.' ")&,&8,#%' +1!)' 5&,B!&'"$.&' $+' +' $--#*&(' @?' $*' #'' ")&' 51,N !)$+&' #8' "$%2+' #8' ")&' - :&' 3&+!, 2" #'' 8,#%' ")&' +$ (' #%% ++ #'&,+6' $'(' $-+#' "#' 2$?' ")&' %#1''' #8' ")&' <$-1&' #8' +1!)' <&--1%6' 5$,!)N %&'"6' $'(' 2$2&,' $!!#,('.'6'"#' ")$' $"&+' $'' *) !)' <&--1%6' 5$,!)' %&'"6' $'(' 5$2&,' #8' ")&' - :&' T1$- "?' $'(' 3&+!, 2" #'' +)$--' @&' +#-(6' @?' ")&' +$ (' #%% ++ #'&,+' ' $'(' ")&,&12#'' +1!)' "$%2' +)$--' @&' %%&N

2,#4 +#

($"&-?' !$'!&--&(]' 5,#4 (&(' $-*$?+6' ")$'' ")&' 5&,+#'' *)#' +)$--' @, '.' #,' +&'(' +1!)' +"$%2&(' <&--1%6' 5$,!)%&'"6' #,' 5$2&,' "#' ")&' +$ (')&$(' 88 !&' +)$--' %$:&' 5,##8' "#' ")&' $" +8$!" #'' #8' +1!)' #%% ++ #'&,+' #,' $1")#, L&(' 88 !&,' ")$'' +1!)' <&--1%6' 5$,!)%&'"6' #,' 5$2&,' *$+' $!"1$--?' '' ")&' 5#++&++ #'' #8' +1!)' 5&,+#'' 8#,' ")&' 51,2#+&' #8' $-&' $'' ")&' %&' #8' ")&' 2$++ '.' #8' ") +' !"6' $'(' +)$--' $-+#' %$:&' 5,##8' '' - :&' $''&,' ")$'' +1!)' +"$%2&(' <&--1%6' 5$,!)%&'"6' #,' 5$2&,6' #,' ")&' "$%2+' %2,&++&(' ")&,&#'6' *$+' #,' *&,&' 21,!)$+&(' @?' ")&' 5&,+#'' *)#' +)$--' @, '.' #,' +&'(' ")&' +$%&' $+' $8#,&+$ (' (,&!"-?' $'' ")&')&$(' 88 !&' 8#,' "$%2+' '' / * ' #,' . " ' #,' 8,#%' +#%&' 3 +", @1"#,' #,' 1@B3 +", @1"#,' #8' "$%2+' (1-?' $22# '"&(' $+' $8#,&+$ (

77 Z2#HD' 3' OD' O2GD' . /' 32# C E #3"D' + EEDEE #' .' 7 HD#EDG' D#G /E' G6 #4!' /' OD^ H O #4'O2#]^ /IC3' /' #^ E 7FD#3!' /' Z" ED' HD#^ HDE' 2/D' /D^ F]DG

< ' '('@&' "&'$!"&(')$'' 8'$'?'5&,+#''- !&'+&('"#' 4&'('#,'(&$-' '' "$%2+' +)$--' (&6'#,'@&!#%&'@$' :,12'' #,' '+#-4&'"6' #,' 8'")&' !&'!&6' #8' $'?' 5&,+#'' "#' 4&'('#,' (&$-' '' "$%2+' +)$--' &92 ,&' #,' @&' ,&4#:&(6' $'('$'?' +1!)' 5&,+#'6' $'' ")&' %&' #8') +' 3&$")6' $':,12"!?6' #,' '+#-N 4&'!?6' #,' $'' ")&' 92 ,$" #'' #,' &4#!$" #'' #8' $'?' +1!)' !&'!&' $+' $8#,&+$ (6' +)$--')$4&' '') +' 5#++&++ #'' $'?' T1$'' "?' #8' +"$%2&(' <&--1%6' 5$,!)%&'"6' #,' 5$2&,6' '' +)$--' @&' -$*81-' 8#,' +1!)' 5&,+#'6' #,) +' 9&B6' !1"#,' #,' (% ' +",$"#,' #,' ++ .'&&6' * ") ''),&&' $-&'($,' #'")+' $8"&,' ")&' 92 ,$"#'6'#,' &4#!$" #'' #8' +1!)' !&'!&6' #,' '&9'' $8"&,' +1!)' 3&$")6' $':,12"!?6' #,' '+#-4&'!?6' $+' ")&' $+&' %$?' @&6' "#' @, '.' #,' +&'(' +1!)' +"$%2&(' <&--1%6' 5$,!)%&'"6' #,' 5$2&,' "#' ")&')&$(' 88 !&' 8#,6' "$%2+' '' / * ' #,' . " '-' $'(' '' +)$--' @&' -$*81-' 8#,' ")&' #%% ++ #'&,+' #8' "$%2+6' #,' $'?' 88 !&,' #8' "$%2' 31" &+' (1-?' $1")#N , L&(' #'' ")$'' &)$-86' "#' ,&!& 4&' ")&' +$%&6' $'(' "#' 2$?' "#' ")&' 5&,+#'' @, '. '.' #,' +&#('.' ")&' +$%&' ")&' %#1''' #8' ")&' "$%2' 31"?' ")&,&#'6' (&(1!" '.' ")&,&8,#%' +1!)' 5&,B!&'"$.&' $+' +' $--#*&(' @?' $*' #'' ")&' 51,!)$+&' #8' "$%2+' #8' ")&' - :&' 3&+!, 2" #'' 8,#%' ")&' +$ (' #%% +N + #'&,+6' $'(' $-+#' "#' 2$?' ")&' %#1''' #8' ")&' <$-1&' #8' +1!)' <&--1%6' 5$,!)%&'"6' $'(' 5$2&,6' $!!#,('.' "#' ")&' $"&+' $'' *) !)' <&--1%6' 5$,!)%&'"6' $'(' 5$2&,' #8' ")&' - :&' T1$- "?' $'(' 3&+!, 2" #'' +)$--' @&' +#-(' @?' ")&' +$ (' #%% ++ #'&,+6' $'(' ")&,&12#'' +1!)' "$%2+' +)$--' @&' %%&($"&-?' XR$'!&-&(]' 5,#4 (&(' $-*$?+6' ")$'' ")&' 5&,+#'' *)#' +)$--' @, '.' #,' +&'(' +1!)' +"$%2&(' <&--1%6' 5$,!)%&'"6' #,' 5$2&,' "#' ")&' +$ (')&$(' 88 !&' +)$--' %$:&' 5,##8' "#' ")&' $" +8$!" #'' #8' +1!)' #%% +N + #'&,+' #,' $1")#, +&(' 88 !&,' ")$'' +1!)' <&--1%6' 5$,!)%&'"6' #,' 5$2&,' 4$+B$!"1$--?' '' ")&' 5&$+&++8#'' ' ")&' 5&,+#'' +#' (? '.6' #,' @&!#% '. @$':,12"

! J $ B ' ' (2C'

@$' : ,12" #,' '+#-4&'"6 #,')$4 ' .')$(' +1!)' !&' !&' *) !)')$(' +#
&92 ,&(' #,')$(' @&&' ' +# ,&4#:&(6 8@8' ")&' 51,2#+&' #8' $-&6 $" ")&' %&'
*)&' ' +1!)' 5&,+#' ' +# (&(' #,' @&!$%&' @$' : ,12" #,' '+#-4&'"6 #,' *)&' '
")&' +$ (' !&' !&' &92 ,&(' #,' *$+' >&4#:&(6 $' (' +)$--' $-+# %$:&' 5,##8'
' ' - :&' $' '&,' ")$" +1!)' +"$%2&(' <&--1%6' 5$,!)%&' "6 #,' 5$2&,6 #,'
")&' "$%2+' %2,&++&(' ")&,&#'6 *$+' #,' *&,&' 21,!)$+&(' #,' 2,#!1,&(' @?'
")&' 5&,+#' ' "#6 *)#%' +1!)' !&' !&' +)$--')$4&' @&&' ' .,$'"&(' $" ")&'
)&$(' 88 !&' 8#,' "$%2+' ' / * ' #,' . " ' #,' 8,#%' +#%&'
+1!)' 3 +", @1"#,' #8' "$%2+' #,' 5&,+#' ' - !&'+&(' "# (&$-' ' ' "$%2+' $+'
$8#,&+$ (

' '(' @&' " &'$!"&(6)$" 12#' ' '8#,%$" #' ' . 4&' ' "# ")(&' 0 0 EE #^
#%% ++ #'&,+' #8' "$%2+' 12#' ' ")&' $")' #8' '&' #,' %#,&' !,&(@-&' D/E' .' 32 0 CE'
5&,+#' ' #,'5&,+#' +' X*) !)' $")' ")&' +$ (' #%% ++ #'&,+6 #,' $'?' '&' D O C ZD/DG'
#,' %#,&' #8' ")&%6 #,' $'?' R1+" !&' #8' ")&' 5&$!&6 $,&' $' (' +')&,&@?' 3 ' 4/2#3'
&%2#*&,&(' "# $(% ' +"&,[' ")$" ")&,&' +' ,&$+#'$@-&' $1+&' "# +1+2&!" @2//2#3E' 3 '
")$" $'?' +1!)' 3 +", @1"#,' #,' 1@B3 +", @1"#,' $+' $8#,&+$ (6 #,' 5&,+#' ' ED2/H"' 2#G'
- !&'+&(' #,' *)# +)$--')$4&' @&&' ' - !&'+&(' 1'(&,' ")&' 1")#, "?' #ECDH3' 3"D'
#8' ") +' !"6)$")' ') +' 5#++&++ #' ' $'?' 8#,.&(' #,' !#1' '"&,8&' " "$%2' 3 H]E' .'
#,' "$%2+6 " +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6 #,' $'?'),&&' 32 O CE' .'
#,' %#,&' #8' ")&%6 @?' E$,,$' " 1'(&,' ")&,' $'(+6 "# $1")#, L&' $'?' * E3/ O13 /E'
88 !&,' #,' 88 !&,+' #8' "$%2' 31" &+6 $'(' +1!)' 88 !&,' #,' 88 !&,+' +' 2#G' 7 HD#EDG'
$'(' $,&')&,&@?' 81--?' $1")#, L&(' $!!#,(' .-?6 * ")' ")&' ++ +"$'!&6 8' * D27D/E
,&C1 ,&(6 #8' $'?' #'+"$@-&' #,' #")&,' 5&$!&' 88 !&,6 "# &'"&,' @&"*&&' '
")&' #1,+' #8' '&' ' ")&' #,' ' .' $'(' &4&' ' ' ")&' 4&' ' .' ' "#
")&' 3*&-- ' .' #1+&6 ##%6)#26 E$,&)#1+&6 1")#1+&6 #,' #")&,'
1 -(' .' #8' #,' @&-#' . ' .' "# $'?' 3 +", @1"#,' #,' 1@B3 +", @1"#,' #8'
"$%2+6 #,' #8' #,' @&-#' . ' .' "# $'?' 5&,+#' ' - !&'+&(6 #,' *)# $" $'?'
%&' *") ' ' 9' $-&'($,' #'")+' ")&' ' -$+" 2$+" +)$--')$4&' @&&' '
- !&'+&(' $+' $8#,&+$ (6 "# 4&'(' #,' (&$-' ' ' "$%2+' $'(' 86 #" 3&%$'(' + ZD/' .'
#8' (% ""$'!&' $'(' #" !&' #8' +1!)' E$,,$'"6 ")&' 3##,' #8' $'?' #3/6
+1!)' 3*&-- ' .' #1+&6 ##%6)#26 E$,&)#1+&6 1")#1+&6 #,' #")&,'
1 -(' .6 #,' $'?' ' '&,' 3##,' ")&,&#86 +)$--' '#" @&' #2&'&(6 ")&' ' "#
@,&$:' #2&' ' ")&' +$%&' ,&+2&!" 4&-?6 $'(' "# +&$,!)' 8#,' $'(' "# +& L&'
$'(' "$:&' '"#) +' $'(' ")&,' 5#++&++ #' ' $--' +1!)' +"$%2&(' <&--1%6'
5$,!)%&' "6 #,' 5$2&,' $+' +)$--' @&' ' $'?' +1!)' 5-$!&' $+' $8#,&+$ (6
#,' &-+&*)&,&' ' ")&' 1+"#(?' #,' 5#++&++ #' ' #8' +1!)' 3 +", @1"#,' #,'
1@B3 +", @1"#,6 #,' 5&,+#' ' - !&'+&(' #,')$4 ' .' @&&' ' - !&'+&(' $+' $8#,&N
+$ (' ' $'(' $--' #'+"$@-&+' $'(' #")&,' 5&$!&' 88 !&,+' $,&')&,&@?' ,&C1 ,&(6
12#' ' ")&' &C1&+" #8' $'?' 5&,+#' ' #,' 5&,+#'+' $!" ' .' 1'(&,' +1!)' E$,N
,$'"6 "# $ (' $'(' $++ +") %6 #,' ")&%' ' ")&' 9&!1" #' ' ")&,&#8 ' $'(' 8' +D#2736' . /'
$'?' #'+"$@-&' #,' #")&,' 5&$!&' 88 !&,' +)$--6 12#' ' $'?' +1!)' &C1&+" $+' /D. I E #4' 3 '
$8#,&+$ (6 L&81+&' #,' '&.-&!" "# @&' $ (' .' $'(' $++ +" ' .' ' ")&' 9&!1" #' ' 2 G' #' 3"D'
#8' $'?' +1!)' E$,,$' " $+' $8#,&+$ (6 #,' 8' $'?' 5&,+#' ' +)$--' ,&81+&' "# &DH I3 #' .'
2&,% " $'?' +1!)' &$,!)' #,' & L1,&' $+' $8#,&+$ (' "# @&' %$(&6 #,' +)$--' E I H"' @2/^
$++$1-"6 #22#+&6 %#-&+"6 #,' #@+",1!" $'?' 5&,+#' ' &%2-#?&(' #,' $!" ' .' ' ' /2#3E' /' 2E^
")&' 9&!1" #' #,' 1'(&,' ")&' 1")#, "?' #8' $'?' +1!)' E$,,$'"6 #,' $ (' .' E2 I 73 #4'
#,' $++ +" ' .' ' ")&' 9&!1" #' ")&,&#8>' &4&,?' +1!)' #'+"$@-&6 5&$!&' +D/E #E' D O ^
88 !&,6 #,' #")&,' 5&,+#' ' +# #88&'(' .' ' $'?' #8' ")&' $+&+' $8#,&+$ (' C7 6DG' #' 3"D'
+)$--' 8#,8&' " 8"?' 5#1'(+ &DH I3 #'
3"D/D .!' VU

' 5,#4 (&(' $-*$?+6 $'(' @&' " &'$!"&(')$" $'?' 5&,+#' ' *)# +)$--' H]# Z7DG4'
&9&!1"&' $'?' +1!)' E$,,$' " +)$--6 8' ,&C1 ,&(6 .4&' "# ")&' 5&,+#' ' .'

T L L B ' ' (2C

3. OCE ED dDG

*)#+& 1+"#(?#,'5#++&++ #'' $'? "$%2+' +)$--' @&' 8#1'(' $'(' +& L&('
$'' !:'#*-&(.%&''#8'")&' 1%@&,6' 5$," !1-$,+6' $'(' %#1''#8'")&'
"$%2+' +# +& L&(6' $'(' +)$--' 2&,% '' +1!)' -$+"B%&'" #'&('5&,+#'6' #,' $'?
5&,+#'' &%2-#?&(' @?') %6' "#' %$,:' ")&' +$%&' @&8#,&' ")&' &%#4$-
")&,&#8' $'! 8")&' 5&,+#'' '' *)#+&' 1+"#(?#,'5#++&++ #''$'?' "$%2+'

<7 HD#EDG'
D#G /' D#^
3 37DG' 3 ' OD'
C2 G' 3"D'
O I#3' .'
4D#I #D'
32OCE'
ED dDG!' /' 3 '
"2FD' 3"DO'
/D3I/#DG' 3 '
" O

+)$--' @&' +# 8#1'(' $'(' +& L&('+)$--' @&' #,' +)$--')$4&' @&&'' * ") '' ")&'
%&' $8#,&+$ (' $' - !&'+&(' <&'(#,' #8' "$%2+6')&' +)$--' @&' &'" "-&('"#'
!-$ %' $'(' ,&!& 4&' '' #'&?' 8,#%' ")&' #%% ++ #'&,+' #8' "$%2+' ")&'
%#1''#8' +1!)' #8' ")&' "$%2+' +# +& L&(6' $+' +)$--' @&' 8#1'(' "#' @&'
.&'1 '&6X(&(1!" '.'")&,&8,#%' +1!)'5&,B!&'"$.&' $+' +' $--#*&('@?' $*'
#'' ")&' 51,!)$+&' #8' "$%2+' #8'")&' - :&' 3&+!, 2" #'6[$'('$-+#"#' ,&!& 4&'
")&' %#1''#8' ")&' <&--1%6' 5$,!)%&'"6' #,' 5$2&,' *)&,&#'' ")&' +$%&'
+)$--' @&' ,#2,&++&(6' $!!#,('.'"#' ")&' $"&+' $'' *) !)' <&--1%6' 5$,!)N
%&'"6' $'('5$7&,'#8'")&' - :&' T1$- "?' $'(' 3&+!, 2" #'' +)$--' @&' +#-(' @?'
")&' +$ (' %'%7+ '&,+' #,' ")& ,' 3 +", @1"#,+' #8' "$%2+' ' #,6' 8'")&' +$ ('
#%% ++ #'&,7+)$--' ") ':' 8 "6' +1!)' #8'")&' +$ (' "$%2+' +# +& L&(' $+' +)$--'
@&' 8#1'(' "&' @&' .&'1 '&' +)$--' @&' ,&"1,'&(' "#' ")&' 5&,+#'' 8,#%' *)#+&'
1+"#(?#,'5#++&++ #'' ")&' +$%&' +)$--')$4&' @&&'' "$:&'6' * ")' +1!)' ,&$N
+#'$@-&' %&'(+'$+' ")&' #,(+' #%% ++ #'&,+'#8' +' $>&+"?;+' ,&$+1,?'
%$?' ") ':' 8 '' "#' $*$,(

HD#EDG'
D#G /E'
"2F #4' H I#'
3D/.D3 32OCE'
#' 3"D /' + E^
EDEE #7 2O7D'
3 ' 3"D' +D#27^
3 DE' .' FD#G^
#4' A /4DG'
32OCE!' I#^
7DEE' 3' OD'
C/ FDG' 3"23'
3"D6' ZD/D'
C/ HI/DG'
./ O'E OD'
* E3/ OI3 /'
/' 7 HD#EDG'
D#G /

' '('@&' "&'$!"&(6')$"' *)&'&4&,'$'?<&--1%6' 5$,!)%&'"6' #,'
5$2&,'+)$--'@&'8 %'(' '")&'5#++&++ #''#8$'?'5&,+#'' - !&'+&('"#' 4&'('#,'
(&$-' '' "$%2+6' #,'*)#+)$--')$4&' @&&'' +# - !&'+&('$''$'? %&' * ") ''
9' $-&'($,' #'")+'")&''&9"2,&!&('.6' +1!)' <&--1%6'5$,!)%&'"6' #,'
5$2&,')$4 '.'")&,&#''$'?'8$-+&6' 8#,.&(6' #,' !#1'"&,8& '' "$%26' $,:6' #,'
%2,&++ #'' ,&+&%@- '.'#,' ,&2,&+&'" '.6' #,' '"&'(&('#,'-$@-&' "#' 2$++' #,'
@&' % +"$:&''8#,'$'?' "$%26' $,:6' #,' %2,&++ #'' #8'$'?' 3 &6' 5-$"&6' #,'
#")&,' '+",1%&''*) !)' $'' $'? %&' *)$"&4&,')$")'@&&'' #,' +)$--' #,'
%$?'@&' 2,#4 (&(6' %$(&6' #,'1+&(6'@?' #,'1'(&,'")&' 3 ,&!" #''#8'")&' #%N
% ++ #'&,+' #8' "$%2+6' 8#,' ")&' 51,2#+&' #8' &92,&++ '.' #,' (&'#' '.'$'?
"$%2' 31"?' *)$"&4&,6' ")&'' $'(' '' &4&,?' +1!)' $+&' ")&' 5&,+#'' ''
*)#+&' 5#++&++ #'' +1!)' <&--1%6' 5$,!)%&'"6' #,'5$2&,'+)$--' @&' +# 8#1'('
+)$--'@&' (&&%&('$'('"$:&''"#')$4&' +#)$('")&' +$%&' '') +' 5#++&++ #''
* ")' '"&''"#' 4&'(6' 1+&6' #,'1"&,'")&' +$%&' * ")' +1!)' 8$-+&6' 8#,.&(6' #,'
!#1'"&,8& '' "$%26' $,:6' #,' %2,&++ #'' ")&,&#'' "#' @&' 8$-+&6' !#1'"&,$?
+)$--' @&' +$" +8$!"#, -?' 2,#4&(' ' $'('+1!)' 5&,+#'' +)$--' $-+#' @&' (&&%&('
$'('"$:&''"#')$4&' +1!)' <&--1%6' 5$,!)%&'"6' #,'5$2&,' +#' '') +' 5#++&+N
+ #'6' :'#* '.'")&' "$%26' $,:6' #,' %2,&++ #'' ")&,&#'' "#' @&' 8$-+&6'
8#,.&(6' $'(' !#1'"&,8& '' "6' $'(' +1!)' 5&,+#'' +)$--'@&' - $@-&' "#' $--'5&'$-"' &+'
$'(' 51' +)%&'"+'@?' $*' %2#+&(' #,' '8- !"&(' 12#'' 5&,+#''+' 4&'('.6'
1+ '.6' 1""&, '.6' #,')$4 '.' '' 2#++&++ #'' 8$-+&6' 8#,.&(6' #,' !#1'"&,8& ''
"$%2+6' :'#* '.'")&' +$%&' "#' @&' 8$-+&6' 8#,.&(6' #,' !#1'"&,8& "6' 1'-&++
+1!)' 5&,+#'' +)$--' '' &4&,? 1!)' $+&' +$" +8$!"#, -?' 2,#4&' ")$"' +1!)'
"$%2' #,' "$%2+' *$+' #,' E&,&' 2,#!1,&(' @?' #,' 8#,' +1!)' 5&,+#'' 8,#%'
+#%&' 3 +", @1"#,' #8' "$%2+' $22# '"&(' @?' ")&' +$ (' #%% ++ #'&,+6' #,'
8,#%' +#%&' 5&,+#'' - !&'+&(' "#' (&$-' '' "$%2+' 1'(&,' ")&' 1")#, "?' #8'
")+' !"6

+D/E #E' 7

7 & ' $! " & (')$"' 8'$'?' 5&,+#'' +)$--' :'#* '.-?' $'(
"2F #4. /4DG'
* ")#1'' -$*81-' 9!1+&' X")&' 5,##8' *)&,&#8' +)$--' - &' #'' ")&' 5&,+#''
* DE' /'
$!!1+&(['$4&' '') +' 5#++&++ #'' $'?' 8" "&6' 8#,.&(6' #,' !#1'"&,8& "' 3 &6'
32OCE' #'
5-$"&6' #,' 1")&8' '+",1%&''7#,' 5$,'#8$'?' +1!)' 3 &6' 5-$"&6' #,' '+",1B

%&'"

%&'"6 ,&+&%@- '.' #,' '"&'(&(' "# ,&+&%@-&6 & ")&,' *)#--? #,' '' 2$,"6
$'? 3 &6 5-$"&6 ',' #")&,' '+",1%&'" *) !)' $" $'? %&' *)$"&4&,')$")'
@&&'' #,' +)$--' #,' %$? @&' 2,#4 (&(6 %$(&6 #,' 1+&(6 @? #,' 1'(&,' ")&'
3 ,&!" #'' #8'")&' #%% ++ #'&,+' #8' "$%2+6 8#,' ")&' 51,2#+&' #8' &92,&+N
+ '.' #,' QWA #" '.' $'? "$%2' 31"?' *)$"&4&,' #,' 8' $'?' 5&,+#'' +)$--'
:'#* '.-?' $'(' * ")#1" -$*81-' 9!1+&' X")&' 5,##8' *)&,&#8' +)$--' - &' #''
")&' 5&,+#'' $!!1+&([')$4&' '') +' 5#++&++ #'' $'? <&--1%6 5$,!)%&'"6
#,' 5$2&,')$4 '.' ")&,&#'' ")&' %2,&++ #'' #8' $'? +1!)' 8$-+&6 8#,.&(6 #,'
!#1'"&,8& " 3 &6 5-$"&6 #,' #")&,' '+",1%&'"6 #,' 5$,'' #8' $'? +1!)' 3 &6
5-$"&6 #,'#")&,' '+",1%&'" $+' $8#,&+$ (6 #,')$4 '.' ")&,&#'' $'? 8$-+&6
8#,.&(6 #,' !#1'"&,8& " "$%26' $,:6 #,' %2,&++ #'' ,&+&%@- '.' #,'
,&2,&+&'" '.6 & ")&,' *)#--? #,' '' 2$,"6 #,' '"&'(&(' #,' - $@-&' "# 2$++' #,'
@&' % +"$:&'' 8#,6 ")&' "$%26 $,:6 #,' %2,&++ #'' #8' $'? +1!)' 3 &6
5-$"&6 #,' #")&,' '+",1%&'" *) !)')$")' @&&'' #,' +)$--' #,' %$? @&' +#
2,#4 X8&(6 %$(&6 #,' 1+&(' $+' $8#,&+$ (6 :'#* '.' +1!)' 8$-+&6 8#,.&(6 #,'
!#1'"&,8& " "$%26 $,:6 #,' %2,&++ #'' "# @&' 8$-+&6 8#,.&(6 #,' !#1'N
"&,8& '' #,' 8' $'?' 5&,+#'' +)$--' 8,$1(1-&'"-?' 1+&6 ># '6 8 96 #,' 2-$!&' 8#,6
* ")6 #,' 12#'' $'? <&--1%6 5$,!)%&'"6 #,' 5$2&,' $'? "$%26 $,:6 #,'
%2,&++ #'' *) !)' +)$--')$4&' @&&'' !1"6 "#,'6 #,' .#""&'' #88' #,' ,&%#4&('
8,#%' $'?' #")&,' <&--1%6 5$,!)%&'"6 #,' 5$2&,' ' #,' 8' $'? 5&,+#'' +)$--'
8,$1(1-&'"-?' &,$+&6 !1"6 +!,$2&6 (+!)$,.&6 #,' .&' #1" #8' #,' 8,#%' $'?
+"$%2&(' <&--1%6 5$,!)%&'"6 #,' 5$2&,' $'? $%&6 1%6 3$"&6 #,'
7")&,' $""&,' #,') '.' ")&,&#'' *, ""&'6 2, '"&(6 #,' &92,&++&(6 * ")'
'"&'' "# 1+&' $'? "$%2' #,' $,:' ")&'' %2,&++&(6 #,' @& '.' 12#'' +1!)'
<&--1%6 5$,!)%&'"6 #,' 5$2&,6 #,' ")$" ")&' +$%&' %$? @&' 1+&(' 8#,' $'?
3&&(6 '+",1%&'"6 $""&,6 #,') '.' '' ,&+2&!" *)&,&#8' $'? "$%2'
31"?' +' #,' +)$--' #,' %$? @&' #,' @&!#%&' 2$?$@-&' ' #,' 8' $'? 5&,+#'' +)$--'
:'#* '.-?' 1+&6 1""&,6 +&--6 #,' &92#+&' "# $-&6 #,' +)$--' :'#* '.-?' $'('
* ")#1" -$*81-' 9!1+&' X")&' 5,##8' *)&,&#8' +)$--' - &' #'' ")&' 5&,+#''
$!!1+&([')$4&' '') +' 5#++&++ #'' $'? +"$%2&(' <&--1%6 5$,!)%&'"6 #,'
5$2&,' 8,#%' #,' #88' #,' #1" #8' *) !)' $'? +1!)' $%&6 1%6 3$"&6 #,' #")&,'
$""&,' #,') '.' $+' $8#,&+$ (' +)$--')$4&' @&&'' 8,$1(1-&'"-?' &,$+&(6 !1"6
+!,$2&(6 (+!)$,.&(6 #,' .#""&'' $+' $8#,&+$ (' ")&'' $'(' '' &4&,?' +1!)' $+&'
&4&,?' 5&,+#'' +# #88&'(' '.6 $'(' &4&,?' 5&,+#'' :'#* '.-?' $'(' * -81--?
$ ('.6 $@&"" '.6 #,' $++ +" '.' $'? 5&,+#'' '' !#%% "" '.' $'? +1!)'
88&'!&6 $'(' @& '.' ")&,&#8' -$*81--?' !#'4 !"&(6 +)$--' @&' $(>1(.&('
.1 -"?' #8' &-#'?6 $'(' +)$--' @&' - $@-&6 $" ")&' 3 +!,&" #'' #8' ")&' #1,"6
"# @&' ",$'+2#,"&(' @&?#'(' ")&' &$+' 8#,' 8&6 #,' 8#,' $'? &,%' '#" -&++'
")$'' &4&'' &$,+6 #,' "# @&' %2, +#'&(' 8#,' $'? &,%' '#' &9!&&('.'
#1,' &$,+' '#,' -&++' ")$'' *# &$,+

' '(' @&' "&'$!"&(6)$" #' $'? '8#,%$" #'' . 4&'' @&8#,&' $'?
R1+" !&' #8'")&' 5&$!&' 12#'' ")&' $")' #8' '&' #,' %#,&' !,&(@-&' 5&,+#'' #,'
57+#'+' X*) !)' $")' +1!)' R1+" !&' +')&,&@?' &%2#*&,&(' "# $(% ' +"&,['
")$" ")&,&' +' >1+" $1+&' "# +1+2&!" $'? 5&,+#'' #8' @& '.' #,')$4 '.'
@&&'' '' $'? *$?&'.$.&(' #,' !#'!&,'&(' '' %$: '.' $'? 8$-+&' #,' !#1'N
"&,8& " 3 &6 5-$"&6 #,' #")&,' '+",1%&'"6 #,' 1'-$*81--?' %$,: '.' #,'
%2,&++ '.' $'? "$%26 $,:6 #,' %2,&++ #'' #'' $'? <&--1%6 5$,!)N
%&'"6 #,' 5$2&,' P<")' $'? +1!)' 3 &6 5-$"&6 #,' '+",1%&'' #,' '' ")&'
1'-$*81-' 5#++&++ #'' #8' $'? 8#,.&(' #,' !#1'"&,8& " 3 &6 5-$"&6 #,' '+",1N
%&'"6 #,' #8' $'? <&--1%6 5$,!)%&'"6 #,' 5$2&,' * ")' $'? !#1'"&,8& "
"$%2>' $,:6 #,' %2,&++ #'' ")&,&#' '#,' '' 1'-$*81--?' #,' 8,$1(1-&'"-?6
#,' * ")#1" (1&' 1")#, "?6 %$: '.' #,' %2,&++ '.' $'? -$*81-' "$%2
#'

3"D /' + EEDE^ E #' N

/' ./2IGI^ 7D#376' 2.. & #4' 32 O CE!' H N

/' D/2E #4') 2 O DE! * 23DE!' H' Z 3"' #3D#3' 3 ' IED' 3"D' 32 O CE

/']# Z #476' IE #4' 2#6' E32 O CDG' D77I O!' H' ./ O' Z" H"' 2#6') 2 O D!' * 23D!' H' E"27' "2FD' ODD#' ./2IGI^ 7D#376' D/2EDGN

41 736' .' AD7 #6

> IEDE' .' +D/E #E' E IE^ CDH3DG' .' OD #4' H #^ HD/#DG' #' 3"D' . /4 #4' .' * DE' /' 32 O CE!' /' #' 3"D' (O O E^ E #' .' 3"D/' .D7 # IE' H3E!' O 26' OD' ED2/H"DG

T ˁ K ˁ L B ˁ ˁ (2C

#'ˁ $'?ˁ <&--1%6ˁ 5$,!)%&'"6ˁ #,ˁ 5$2&,6ˁ #,ˁ 'ˁ !$1+ '.ˁ #,ˁ 2,#!1, '.ˁ ")&ˁ
+$%&ˁ "#ˁ @&ˁ +#ˁ %$,:&(ˁ #,ˁ %2,&++&(6ˁ #,ˁ 'ˁ $ ('.6ˁ $@&"" '.6ˁ #,ˁ $++ +" '.ˁ
'ˁ +#ˁ %$,: '.ˁ /ˁ %2,&++ '.ˁ ")&ˁ +$%&ˁ #,ˁ 'ˁ ")&ˁ 1'-$*81-ˁ 5#++&++ #'ˁ
#8ˁ $'?ˁ <&--1%6ˁ 5$,!)%&'"6ˁ #,ˁ 5$2&,6ˁ #,ˁ #")&,ˁ $"&, $-6ˁ 1'-$*81--?ˁ #,ˁ
8,$1(1-&'"-?ˁ #,ˁ * ")#1"ˁ (1&ˁ 1")#, "?ˁ +"$%2&(ˁ #,ˁ %$,:&(6ˁ !#'",$,?ˁ
"#ˁ $'?ˁ #8ˁ")&ˁ 5,#4+#'+ˁ #,ˁ &.1-$"#'+ˁ !#'"$ '&(ˁ 'ˁ $'?ˁ !"ˁ ,&-$" '.ˁ "#ˁ
"$%2ˁ 31"&+ˁ ',ˁ #8ˁ @& '.ˁ #,ˁ)$4 '.ˁ @&&'ˁ 'ˁ $'?ˁ *$?ˁ &'.$.&(ˁ #,ˁ !#'N
!&,'&(ˁ 'ˁ ")&ˁ 8,$1(1-&'ˁ &,$+ '.6ˁ !1"" '.6ˁ +!,$2 '.6ˁ (+!)$,. '.6ˁ #,ˁ
.&"" '.ˁ #1"ˁ #8ˁ #,ˁ 8,#%ˁ #,ˁ #-8ˁ $'?ˁ +"$%2&(ˁ <&--1%6ˁ 5$,!)%&'"6ˁ #,ˁ
5$2&,ˁ $'?ˁ $""&,ˁ #,ˁ) '.ˁ ")&,&#'ˁ *, ""&'6ˁ 2, '"&(6ˁ #,ˁ &92,&++&(ˁ ˁ #,ˁ
'ˁ ")&ˁ 1'-$*81-ˁ 5#++&++ #'ˁ #8ˁ $'?ˁ +"$%2&(ˁ <&--1%6ˁ 5$,!)%&'"6ˁ #,ˁ
5$2&,ˁ 8,#%ˁ #,ˁ ..ˁ #,ˁ #1"ˁ #8ˁ *) !)ˁ $'?ˁ $""&,ˁ #,ˁ) '.ˁ +)$--ˁ)$4&ˁ @&&'ˁ
8,$1(1-&'"-?ˁ &,$+&(6ˁ !1"6ˁ +!,$2&(6ˁ (+!)$,.&(6ˁ #,ˁ .#""&'ˁ $+ˁ $8#,&+$ (6ˁ
")&'ˁ $'(ˁ 'ˁ &4&,?ˁ #,ˁ $'?ˁ #8ˁ ")&ˁ +$ (ˁ $+&+ˁ ˁ +)$--ˁ @&ˁ -$*81-ˁ 8#,ˁ +1!)ˁ
R1+" !&ˁ @?ˁ E$,,$'ˁ 1'(&,ˁ) +ˁ $'(ˁ "#ˁ !$1+&ˁ $'?ˁ $'(ˁ &4&,?ˁ 3*&-- '.ˁ
#1+&6ˁ ##%6ˁ E#,:+)#2ˁ 1")#1+&6ˁ #,ˁ #")&,ˁ 1-('.6ˁ $,(6ˁ
H$,(&'6ˁ #,ˁ #")&,ˁ 5-$!&ˁ @&-#'. '.ˁ "#ˁ +1!)ˁ +1+2&!"&(ˁ 5&,+#'6ˁ
#,ˁ *)&,&ˁ $'?ˁ +1!)ˁ 5&,+#'ˁ +)$--ˁ @&ˁ +1+2&!"&(ˁ #8ˁ @& '.ˁ #,ˁ #8ˁ
)$4 '.ˁ @&&2ˁ 'ˁ $'?ˁ *$?ˁ &'.$.&(ˁ #,ˁ !#'!&,'&(ˁ 'ˁ ")&ˁ #%% ++ #'ˁ
#8ˁ $'?ˁ +1)ˁ 88&$!#ˁ $+ˁ $8#,&+$ (6ˁ #,ˁ #8ˁ +&!,&" '.ˁ $'?ˁ +1!)ˁ 3 &6ˁ
5-$"&6ˁ #,ˁ '+",1%&'"6ˁ #,ˁ $'?ˁ +1!)ˁ <&--1%6ˁ 5$,!)%&'"6ˁ #,ˁ 5$2&,6ˁ #,ˁ
$'?ˁ #8ˁ ")&ˁ $!) '&,?6ˁ %2-&%&'"+6ˁ #,ˁ V"&'+ -+ˁ '&!&++$,?ˁ #,ˁ $22- N
!$@-&ˁ "#ˁ ")&ˁ #%% ++ #'ˁ #8ˁ $'?ˁ +1!)ˁ 88&'!&ˁ $+ˁ $8#,&+$ (6ˁ "#ˁ @&ˁ
+&$,!)&(ˁ . /ˁ $'?ˁ +1!)ˁ +"$%2&(ˁ <&--1%6ˁ 5$,!)%&'"6ˁ #,ˁ 5$2&,6ˁ $'(ˁ
8#,ˁ $'?ˁ +1!)ˁ 3 &6ˁ 5-$"&6ˁ #,ˁ '+",1%&'"6ˁ $!) '&,?6ˁ %2-&%&'"6ˁ #,ˁ
V"&'+-6ˁ #,ˁ #")&,ˁ $""&,ˁ #,ˁ) '.ˁ $+ˁ $8#,&+$ (ˁ $'(ˁ 8ˁ $'?ˁ #8ˁ ")&ˁ
+$ (ˁ +&4&,$-ˁ $""&,+ˁ $'(ˁ) '.+ˁ +)$--ˁ @&ˁ 8#1'(ˁ 'ˁ $'?ˁ 5-$!&ˁ +#ˁ
+&$,!)&(6ˁ #,ˁ 'ˁ ")&ˁ 1+"#(?ˁ #,ˁ 5#++&++ #'ˁ #8ˁ $'?ˁ 5&,+#'ˁ *)$"+#&4&,ˁ
'#"ˁ)$4 '.ˁ ")&ˁ +$%&ˁ @?ˁ +#%&ˁ -$*81-ˁ 1")#, "?6ˁ "ˁ +)$--ˁ @&ˁ -$*81-ˁ 8#,ˁ ")&ˁ
5&,+#'ˁ 8 '(ˁ '.ˁ $'?ˁ +1!)ˁ $""&,+ˁ #,ˁ) '.+ˁ "#ˁ +&L&ˁ ")&ˁ +$%&ˁ ,&+2&!N
"4&-?6ˁ $'(ˁ "#ˁ !$,,?ˁ ")&ˁ +$%&ˁ 8#,")*ˁ "ˁ "#ˁ ")&ˁ R1+" !&ˁ @?ˁ *)#%ˁ +1!)ˁ
E$,,$'ˁ +)$--ˁ @&ˁ .,$'"&(6ˁ #,ˁ "#ˁ $'?ˁ #")&,ˁ R1+" !&ˁ #8ˁ ")&ˁ 5&$!&ˁ)$4 '.ˁ
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"#ˁ @&ˁ +&!1,&(ˁ $'(ˁ 2,#(1!&(ˁ 'ˁ 4 (&'!&ˁ $.$ '+"ˁ $'?ˁ 5&,+#'ˁ *)#ˁ
+)$--ˁ #,ˁ %$?ˁ @&ˁ 2,#+&!1"&(ˁ 'ˁ $'?ˁ #1,"ˁ #8ˁ R1+" !&ˁ 8#,ˁ $'?ˁ #8ˁ ")&ˁ
88&'!&+ˁ $8#,&+$ (ˁ $'(ˁ $8"&,*$,(+ˁ ")&ˁ +$ (ˁ $""&,+ˁ $'(ˁ) '.+ˁ +#ˁ
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,(&,ˁ #8ˁ +#%&ˁ R1+" !&ˁ #8ˁ ")&ˁ 5&$!&ˁ 'ˁ !$+&ˁ ")&,&ˁ +)$--ˁ @&ˁ '#ˁ +1!)ˁ
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8#,ˁ $-&ˁ #,ˁ 9!)$'.&ˁ $'?ˁ +"$%2&(ˁ <&--1%6ˁ 5$,!)%&'"6ˁ #,ˁ 5$2&,6ˁ #,ˁ
8ˁ $'?ˁ 5&,+#'ˁ +)$--ˁ 1""&,ˁ #,ˁ #8-&,ˁ 8#,ˁ $-&ˁ #,ˁ 9!)$'.&6ˁ $"ˁ $'?ˁ #1+&6ˁ
)#2ˁ #,ˁ 5-$!&ˁ #")&,ˁ ")$'ˁ ")&ˁ #1+&ˁ #,6ˁ)#2ˁ 'ˁ *) !)ˁ)&ˁ +)$--ˁ ,&+ (&ˁ
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5$,!)%&'"6ˁ #,ˁ 5$2&,6ˁ &4&,?ˁ +1!)ˁ 5&,+#'ˁ +)$--ˁ 8#,8&ˁ ")&ˁ 1%ˁ #8ˁ
*&'"?ˁ 5#1'(+6ˁ FD/ˁ $'(ˁ $@#4&ˁ $'?ˁ 5&'$-"?ˁ "#ˁ *) !)ˁ)&ˁ %$?ˁ @&ˁ
- $@-&ˁ 8#,ˁ 4&'('.ˁ #,ˁ (&$- '.ˁ 'ˁ "$%2+ˁ * ")#1"ˁ @& '.ˁ - !&'+&(ˁ +#ˁ "#ˁ
(#ˁ $'(ˁ +)$--ˁ %#,&#4&,ˁ -$*81-ˁ 8#,ˁ $'?ˁ 5&,+#'6ˁ *")#1"ˁ $'?ˁ #")&,
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E $ $'" ")$'") +' !"6 8#,' ")$" 51,2#+&' "# $22,&)&'('$'?' 5&,+#' +# >2Z]D/E' .'
)$* : '.6 !$,,? '.' $@#1"6 1""&, '.6 #,' #88&, '.' 8#,' $-&' #,' 9!)$'.&'
+1!)' +"$%2&(' <&--1%6 5$,!)%&'"6 #,' 5$2&,6 $'(' "# "$:&') %' #,' !$1+&') (A7P'('
) %' "# @&' "$:&'' @&8#,&' $'?' R1: !&' #8' ")&' 5&$!&')$4 '.'R1, +(!" #'' 32]D# OD. /D'
*)&,&' ")&' 88&'!&' +)$--' @&' !#%% ""&(6 *)# +)$--')&$,' $'(' (&"&,% '&' Ó, IE3 HD' .'
"-&' $""&,' ' $'(' 8' ")&' 88&'(&,' +)$--' '#" %%&($"&-?' #'') +' #'B' 5&$!&6
4 !-#'' 2$?' ")&' +$ (' 5&'$-"?' +1!)' R1+" !&' +)$--' !#%% ") %' "# 5, +#''
8#,' $'?' 5&, #(' #8' %&' '#" -&++' ")$'' '&' '#,' %#,&' ")$''),&&'
$-&'($,' #'")+6 1'-&++'+1!)' 5&'$-"?' +)$--' @&' +##'&,' 2$ (' #,' +$" +8 &('
$'(' $--' +"$%2&(' <&--1%6 5$,!)%&'"6 $'(' 5$2&,' *) !)' +)$--' @&' 8#1'('
'' ")&' 5#++&++ #'' 28' +1!)' 88&'(&,' +)$--' @&' 8#,8& "&(' "# +' $>&+"?6
$'(' +)$--' @&' "$:&'' 2#++&++ #'' #8' @?' +1!)' R1+" !&6 $'(' @&' (&- 4&,&('
#4&,' "#")&' #%% ++ #'&,+' #8' "$%2+6 "# @&' (+2#+&(' #8' '' $'?' $''&,'
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'#" @&' $22,&)&'(&(' $'(' 2,#!&&(&(' $.$ '+" '' ")&' $''&,')&,& 'B'
@&8 >,&' (,&!"&(6 ")&'' ")&' +$ (' 5&'$-"?' #8' *&'"?' 5#1'(+' +)$--' @&'
,&!#4&,$@-&' @?' $'?' #")&,' #8' ")&' E$?+' $'(' &$'+' 2,#4 (&(' 8#,' ")&'
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<' '(' 8#,' ")&' @&""&,' 2,&4&'" '.' $'(' (&"&!" '.' #8' &-#' &+' $'(1E3 HDE' O26'
,$1(+' '' ,&-$" #'' "# +"$%2&(' <&--1%6 5$,!)%&'"6 #,' 5$2&,6 @&' '' EE ID' @2/^
&'$!"&(6)$" " +)$--' @&' -$*81-' 8#,' $'?' R1+" !&' #8' ")&' 5&$!&')$4 '.' /2#3E' . /'ED d^
R1, +(!" #'' *)&,&' $'?' +"$%2&(' <&--1%6 5$,!)%&'"6 #,' 5$2&,' +)$-- #4' 32OCE'
@&' #,' @&' +12> @+&(' "# @&' !#'!&$-&(' #,' (&2#+ "&(6 12#'' $'?' ,&$+#'$@-&' EIECDH3DG' 3 '
1+2 ! #'' ")$" +1!)' +"$%2&(' <&--1%6 5$,!)%&'"6 #,' 5$2&,')$+' @&&'' OD' E3 7D#' /'
+"#-&'' ,' 8,$1(1-&'"-?' #@"$ '&(6 "# ++1&') +' E$,,$'" 8#,' ")&' +& L '. ./21G17D#376'
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8#,' $22,&)&'('.' $'(' @, '. '.' @&8#,&' +1!)' R1+" !&' #,' $'?' #")&,'
R1+" !&' * ") '' ")&' +$%&' R1, +(!" #'' ")&' 5&,+#'' '' *)#+&' 5#++&++ #''
#,' 1+"#(?' +1!)' +"$%2&(' <&--1%6 5$,!)%&'"6 #,' 5$2&,' +)$--' @&'
8#1'(6 "# @&' (&$-" * ")' $!!#,('.' "# $*' ' $'(' 8' +1!)' 5&,+#'' +)$--'
%"#,' ,&81+&' "# $!!#1'" 8#,' ")&' 5#++&++ #'' #8' +1!)' +"$%2&(' <&--1%6
5$,!)%&'"7 #,' 5$2&,6 #,' +)$--' @&' 1'$@-&' +$" +8$!"#, -?' "# $!!#1'" 8#,'
")&' 2#++&++ #''")&,&#86 #,' " +)$--' '#" $22&$,' ")$"")&' +$%&' *$+' #,' *&,&'
21,!)$+&(' @?') %' $" ")&')&$(' 88 !&' 8#,' "$%2+' '' / * ' #,'
. " '#,' 8,#%' +#%&' 3 +", @1"#,' #,' 1@B3 +", @1"#,' #8' "$%2+6 #,'
#%&' <&'(#,' #8' "$%2+' (1-?' - !&'+&(' 1'(&,' ")&' 1")#, "?' #8' ") +'
!"6 ")&'' $'(' '' &4&,?' +1!)' $+&' +1!)' +"$%2&(' <&--1%6 5$,!)%&'"6
$"'(' 5$2&,6 V,' +1!)' 5$,'"")&,&#8' #8' *) !)' '# !!#1'" #,' '#' +$" +8$!"#,?
!!#1'" +)$--' @&' . 4&'6 #,' *) !)' +)$--' '#" $22&$,' "#)$4&' @&&'' 21,N
!)$+&(' $" &")&,' #8' ")&' +$ ( )&$(' 88 !&+6 #,' 8,#%' +#%&' 3 +", @1"#,'
' 1@B3 +"8 @1"#,' #8' "$%2+' #,' - !&'+&('<&'(#,' $+' $8#,&+$ (6 +)$--' @&'
8#,8& "&(' "# +' $>&+"?6 $'(' +)$--' @&' $!!#,('.-?' !#'(&%'&(' @?' +1!)'
R1+" !&6 $'(' ")&,&12#'' ")&' +$%&' +)$--' @&' (&- 4&,&(' #4&,' "#")&' #%N
% ++ #'&,+' V8 "$%2+6 *)# +)$--' :&&2' ")&' +$%&' 8#,' ")&' 2$!&' #8' 9'
$-&'($,' #'")+6 $'(' $8"&,*$,(+' !$'!&-' $'(' (&+",#?' ")&' +$%&6 #,'
(+2#+&' ")&- &#8 8#,' ")&' V+&' #8' +' $>&+"?;+' &4&'1&6 $+' ")&?' +)$--'
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* +&' 8,$1(1-&'"-?' #@"$ '&(' 8,#%') %6 $'(' " +)$--' $-+# $22&$,' ")$"
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88 !&+6 #,ʿ8,#%ʿ +#%& 3 +", @1"#,ʿ#,ʿ 1@B3 +", @1"#,ʿ#,ʿ- !&'+&(ʿ<&'(#,ʿ #8ʿ "$%2+ʿ $+ʿ $8#,&+$ (6 " +)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ +1!)ʿ 5&,+#'ʿ "#ʿ)$4&ʿ ")&ʿ +$%&6 #,ʿ +1!)ʿ 5$," ")&,&#8ʿ $+ʿ +)$--ʿ @&ʿ +#ʿ 2,#4&(ʿ "#ʿ)$4&ʿ @&&'ʿ +"#-&'ʿ #,ʿ8,$1(1-&'"-? #@"$ '&(ʿ8,#%ʿ) %6 (&- 4&,&(ʿ12ʿ"#ʿ) %6 #'ʿ2,#N (1! '.ʿ$ʿ &," 8 !$"&ʿ 1'(&,ʿ")&ʿ $'(ʿ$'(ʿ &$-ʿ #8ʿ +1!)ʿ R1+" !&ʿ ")$" ")&ʿ .)" #8ʿ +1!)ʿ 5&,+#'ʿ")&,& 'ʿ)$")ʿ @&&'ʿ (1-?ʿ2,#4&(ʿ] 5,#4 (&(ʿ $-+#6 ")$" '#+1!)ʿ &," 8 !$"&ʿ +)$--ʿ @&ʿ . 4&'ʿ 1'-&++ʿ #" !&ʿ 'ʿ E, " '.ʿ 1'(&,ʿ ")&ʿ $'(ʿ6#8ʿ +1!)ʿ R1+" !&ʿ +)$--ʿ @&ʿ . 4&'ʿ "#ʿ ")&ʿ #- ! "#,ʿ #8ʿ "$%2+ʿ &4&'ʿ !-&$,ʿ 3$?+ʿ$" ")&ʿ -&$+" 2,&4 #1+-? "#ʿ ")&ʿ 3$? #8ʿ)&$, '.ʿ $'?ʿ -$ %6 'ʿ ,&+2&!" #8ʿ +1!)ʿ +"$%2&(ʿ <&--1%6 5$,!)%&'"6 #,ʿ 5$2&,6 #8ʿ ")&ʿ %&ʿ $'(ʿ 5-$!&ʿ $22# '"&(ʿ 8#,ʿ +1!)ʿ &$, '.

(O O EE #^ D/Eʿ O26ʿ G E^ H #3 #IDʿ * DE!ʿ 2#Gʿ C/ F GDʿ #DZʿ #DEʿ # 7 D Iʿ 3"D/D .

< ʿ '(ʿ@&ʿ "&'$!"&(6)$" "+)$--ʿ @&ʿ -$*81-ʿ 8#,ʿ ")&ʿ #%% ++ #'&,+ʿ #8ʿ "$%2+ʿ 68,#%ʿ %&ʿ "#ʿ %&6 *)&'&4&,ʿ ")&?ʿ +)$--ʿ (&&%ʿ "ʿ '&!&+N +$,? #,ʿ &92&(&'"6 "#ʿ (+!#'" '1&ʿ ")&ʿ V+&ʿ #8ʿ $--ʿ #,ʿ $'?ʿ #8ʿ ")&ʿ 3 &+ʿ)&,&"#8#,&ʿ 2,#4 (&(ʿ #,ʿ 1+&(6 #,ʿ $" $'?ʿ %&ʿ)&,&$8"&,ʿ "#ʿ @&ʿ 2,#4 (&(ʿ #,ʿ 1+&(6 8#,ʿ (&'#" '.ʿ #,ʿ %$,: '.ʿ $'?ʿ "$%2ʿ 31"?ʿ *) !)ʿ '#*ʿ +ʿ #,ʿ $" $'?ʿ %&ʿ)&,&$8"&,ʿ +)$--ʿ @&ʿ @?ʿ $*ʿ 2$?$@-&ʿ 8#,ʿ #,ʿ 'ʿ ,&+2&!" #8ʿ $'?ʿ $""&,ʿ #,ʿ) '.ʿ *)$"+#&4&,6 $'(ʿ "#ʿ !$1+&ʿ $'?ʿ '&*ʿ 3 &ʿ #,ʿ 3 &+6 * ")ʿ +1!)ʿ $-"&,&(ʿ 3&4 !&ʿ #8ʿ 3&4 !&+ʿ ,&+2&!" 4&-?ʿ ")&,&#'ʿ $+ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ +)$--ʿ ") ':ʿ 8 "6 "#ʿ @&ʿ 2,#4 (&(ʿ $'(ʿ 1+&(ʿ 'ʿ - &1ʿ #8ʿ ")&ʿ 3 &ʿ #,ʿ 3 &+ʿ +#ʿ (+!#'" '1&(

.3D/ʿ 2ʿ * 26ʿ . &DGʿ O6ʿ) ^ 3 HDʿ # 3"Dʿ 2dD33Dʿ 3"Dʿ #DZʿ * DEʿ 3 ʿ ODʿ 3"Dʿ #76ʿ 3/I Dʿ 2#G 72Z^ . I7ʿ * DE

< 'ʿ '(ʿ@&ʿ "&'$!"&(ʿ)$" *)&'&4&,ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ +)$--ʿ (&"&,% '&ʿ "#ʿ (+!#'" '1&ʿ ")&ʿ V+&ʿ #8ʿ $'?ʿ 3 &ʿ #,ʿ 3 &+6 $'(ʿ +)$--ʿ 2,#4 (&ʿ $'?ʿ '&*ʿ 3 &ʿ #,ʿ 3 &+ʿ "#ʿ @&ʿ 1+&(ʿ 'ʿ - &1ʿ ")&,&#86 $'(ʿ ")&ʿ +$ (ʿ #%% ++ #'&,+ʿ +)$--ʿ . 4&ʿ 21@- !ʿ #" !&ʿ ")&,&#8ʿ @?ʿ (4&," +&%&'" 'ʿ ")&ʿ $'(ʿ . "ʿ H$L&""&+ʿ ,&+2&!" 4&-?6 ")&'ʿ 8,#%ʿ $'(ʿ $8"&,ʿ +1!)ʿ 3$?ʿ #,ʿ %&ʿ $+ʿ +)$--ʿ @&ʿ 8 9&(ʿ $'(ʿ $22# '"&(ʿ @?ʿ +1!)ʿ (4&," +&N %&'"6 '#"ʿ @&ʿ '."4") 'ʿ")&ʿ 2$!&ʿ #8ʿ '&ʿ $-&'($,ʿ #'")ʿ '&9" $8"&,ʿ ")&ʿ +$%&ʿ +)$--ʿ)$4&ʿ @&&'ʿ 21@- +)&(ʿ 'ʿ ")&ʿ +$ (ʿ H$L&""&+ʿ ,&+2&!" 4&-?6 ")&ʿ +$ (ʿ '&*ʿ 3 &ʿ #,ʿ 3 &+ʿ +#ʿ 2,#4 (&(ʿ +)$--ʿ @&ʿ ")&ʿ #'-?ʿ ",1&ʿ $'(ʿ -$*81-ʿ 3 &ʿ #,ʿ 3 &+ʿ 8#,ʿ(&'#" '.ʿ ")&ʿ 31"?ʿ !)$,.&(ʿ #,ʿ !)$,.&$@-&ʿ 'ʿ $'?ʿ $+&ʿ "#ʿ *) !)ʿ +1!)ʿ 3 &ʿ #,ʿ 3 &+ʿ +ʿ #,ʿ $,&ʿ ,&+2&!" 4&-?ʿ $22- !$@-&ʿ $'(ʿ $--ʿ 3&&(+ʿ $'(ʿ '+",1%&'"+ʿ 8#,ʿ ")&ʿ %$,: '.ʿ #,ʿ +"$%2 '.ʿ #8ʿ *) !)ʿ $'?ʿ +1!)ʿ '&*ʿ 3 &ʿ #,ʿ 3 &+ʿ +)$--ʿ)$4&ʿ @&&'ʿ 2,#4 (&(6 $'(ʿ *) !)ʿ $8"&,ʿ ")&ʿ 3$?ʿ +#ʿ 8 9&(ʿ$1(ʿ $22# '"&(ʿ $+ʿ $8#,&+$ (ʿ +)$--ʿ @&ʿ '.,#++&(6 *,""&'6 #,ʿ 2, '"&(ʿ 12#'ʿ <&--1%6 5$,!)%&'"6 #,ʿ 5$2&,ʿ +"$%2&(ʿ #,ʿ %$,:&(ʿ * ")ʿ $'?ʿ #")&,ʿ 3 &ʿ #,ʿ 3 &+ʿ ")$" ")&ʿ +$ (ʿ '&*ʿ 3 &ʿ #,ʿ 3 &+ʿ +#ʿ 2,#4 (&(ʿ 8#,ʿ ")&ʿ +$%&ʿ $+ʿ $8#,&+$ (6 $'(ʿ $-+#ʿ $--ʿ +1!)ʿ 3&&(+ʿ $'(ʿ '+",1%&'"+ʿ $+ʿ $8#,&+$ (ʿ *) !)6)$4 '.ʿ @&&'ʿ '.,#++&(6 *,""&'6 #,ʿ 2, '"&(ʿ 12#'ʿ <&--1%6 5$,!)%&'"6 #,ʿ 5$2&,ʿ +"$%2&(ʿ #,ʿ %$,:&(ʿ $+ʿ -$+"ʿ $8#,&+$ (6 +)$--ʿ '#")$4&ʿ @&&'ʿ &9&!1"&(ʿ #,ʿ + .'&(ʿ @?ʿ $'?ʿ 5$,"?ʿ ")&,&"#ʿ @&8#,&ʿ #,ʿ 12#'ʿ ")&ʿ +$ (ʿ 3$?ʿ #8ʿ 8 9&(ʿ $'(ʿ $22# '"&(ʿ $+ʿ $8#,&+$ (6 +)$--ʿ @&ʿ '.,#++&(6 *,""&'6 #,ʿ 2, '"&(ʿ #'ʿ <&--1%6 5$,!)%&'"6 #,ʿ 5$2&,ʿ '#"ʿ (1-?ʿ +"$%2&(ʿ #,ʿ %$,:&(ʿ $+ʿ ,&C1 ,&(ʿ @?ʿ $*ʿ 5,#4 (&(ʿ $-*$?+6 ")$" 'ʿ ")&ʿ $+&ʿ #8ʿ $'?ʿ 3&&(ʿ #,ʿ '+",1%&'"ʿ ,&C1 ,&(ʿ "#ʿ @&ʿ +"$%2&(ʿ #,ʿ %$,:&(ʿ * ")ʿ +1!)ʿ '&*ʿ 3 &ʿ #,ʿ 3 &+ʿ $+ʿ $8#,&+$ (ʿ *) !)ʿ +)$--ʿ @&ʿ '.,#++&(6 *,""&'6 #,ʿ 2, '"&(ʿ 12#'ʿ <&--1%6 5$,!)N %&'"6 #,ʿ 5$2&,ʿ "$%2&(ʿ #,ʿ %$,:&(ʿ#")&,ʿ * +&ʿ ")$" *) !)ʿ +1!)ʿ '&*ʿ 3 &ʿ #,ʿ 3 &+6 $'(ʿ *) !)ʿ $8"&,ʿ ")&ʿ +$ (ʿ 3$?ʿ #,ʿ %&ʿ +)$--ʿ)$4&ʿ @&&'ʿ 8 9&(ʿ $'(ʿ $2N 2# '"&(ʿ $+ʿ $8#,&+$ (ʿ +)$--ʿ @&ʿ B8 ,+" &9&!1"&(ʿ #,ʿ + .'&(ʿ @?ʿ $'?ʿ 5$,"?ʿ ")&,&"#ʿ $'?ʿ 5-$!&ʿ #1" #8ʿ ")&ʿ V' "&(ʿ D '.(#%6 "+)$--ʿ @&ʿ -$*81- 8#,

8#,' ")&' +$ (' #%% ++ #'&,+6' $'(' ")&?' $,&')&,&@?' ,&C1 ,&(6' 12#'' 5,##8'#8'")&' $!"+' "#' ")& ,' $" +8$!" 2'6' "#' !$'!&-' $'('$--#*'' ")&' "$%2' #,' "$%2+' %2,&++&(' #'' +1!)' 3&&(' #,' '+",1%&'"6' $'(' "#' !$1+&' +1!)' 3&&(' #,' , +",1' &'" "#' @&' +"$%2&(' #,' %$,:&(' * ")' +1!)' '&*' 3 &' (,' 3 &+6' "('")&' +$%&' %#1'" #8' 31"?6' * ")#1" 5$?%&'" #8'$'?' 5&'$-"?6' 2,#4 (&(' +1!)' 3&&(' #,' '+",1%&'" +)$--' @&' 2,#(1!&(' "#' ")&' +$ (' #%% ++ #'&,+' 8#,' ")&' 51,2#+&' $8#,&+$ (' * ") '' '&' $-&'($,' #'")' '&9" $8"&,' ")&' +$%&' +)$--' $,, 4&' '' ") +' D '.(#%

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320CE' /D#^ GD/DG' IED7DEE' O6' 3"D' * E^ H #3 #I2#HD' .' 7G' * DE' 2#G' 3"D' C/ ^ F G #4' .'#DZ' * DE!' 3 ' OD' 277 ZDG' 2#G' D&H"2#4DG

' '(' @&' "&'$!"&(6')$" '' $'?' $+&' '' *) !)' ")&' #%% +N + #'&,+' #8' "$%2+' $,&' #,' +)$--' @&' @?' ") +' !" #,' $'?' #")&,' !" ,&-$" '.' "#' "$%2' 31" &+' $1")#, L&(' $'(' (,&!"&(' "#' !$'!&-' "$%2+' +2# -&(' #,' ,&'(&,&(' 1+&-&++' #,' 1'8 " 8#,' ")&' 51,2#+&' '"&'(&(6' $'(' "#' %$:&' --#*$'!&' 8#,' ")&' +$%&' @?' . 4 '.' #")&,' "$%2+' '' - &1' ")&,&#86' " +)$--' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' 8' ")&?' '' ")&, ' 3 +N !,&" #'' +)$--' ") ':' 8 "6' '+"&$(' #8' . 4 '.' "$%2+6' "#' ,&81'(' $'(' ,&2$?' "#' ")&' 5$,"?' &'" "-&(' "#' +1!)' --#*$'!&' ")&' %#1'" ")&,&#8' '' #'&?6' (&(1!" '.' ")&,&8,#%' +1!)' 5&,B!&'"$.&' $+' +' $--#*&(' @?' $*' #'' ")&' 51,!)$+&' #8' "$%2+' #8' ")&' +$%&' 3&+!, 2" #'' $+' ")#+&' '' ,&+2&!" #8' *) !)' +1!)' --#*$'!&' +)$--')&' %$(&' $'(' " +)$--' $-+#' @&' -$*81-' 8#,' ")&' +$ (' #%% ++ #'&,+6' 8' ")&?' '' ")&, ' 3 +!,&" #'' +)$--' ") ':' 8 "6' "#' ,&81'(' $'(' ,&2$?' "#' $'?' 5&,+#'' 2#++&++&(' #8' $'?' "$%2' #,' "$%2+' *) !)' +)$--')$4&' @&&'' +2# -&(' #,' ,&'(&,&(' 1+&-&++' #,' 1'8 " 8#,' ")&' 51,2#+&' '"&'(&(6' @1" 8#,' *) !)')&' +)$--')$4&' '#' %%&(' $"&' V+&' #,' !!$+ #'6' ")&' %#1'" #,' <$-1&' #8' +1!)' "$%2' #,' "$%2+' '' #'&?6' (&(1!" '.' ")&,&8,#%' +1!)' 5&,B!&'"$.&' $+' $8#,&+$ (' 12#'') +' (&- 4&,N ' '.' 12' +1!)' "$%2' #,' "$%2+' "#' ")&' +$ (' #%% ++ #'&,+' "#' @&' !$'N !&--&(6' $'(' 2,#4 '.' "#' ")&, ' $" +8$!" #'' ")$" ")&' +$%&' *$+' #,' *&,&' 21,!)$+&(' @?') %' * ")' $" '' ' '' '&'" "#' 1+&' ")&' +$%&6' $'(' ")$" ")&')&')$+' 2$ (' ")&' 81--' %#1'" #,' <$-1&' (&'#"&(' @?' +1!)' "$%2' #,' M "$%2+6' * ")#1" $'?' 3&(1!" #'6' +$4&' $'(' &9!&2" #'-?' ")&' %#1'"

(O O EE #^ D/E' 213" ^ / dDG' 3 ' /D^ .I#G' # B #D6' 3"D' O I#3' .' 320CE' EC 7DG' /' /D#GD/DG' IED^ 7DEE

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* -81--?' %$:&' $' 8$-+&' $")' #,' 88 ,%$" #' ' #8' #,' !#'!&,' '.' $'?' #8' ")&'
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' ,&+2&!" #8' *) !)' +1!)' 1%' +)$--' @&' 2$ (

< ' 5,#4 (&(' $-*$?+6' $'(' O D' " &'$!"&(')$" " +)$--' @&' -$*81-' #6' , I E3 HD'
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+)$-' @&' -$*81-' 8#,' $'?'R1+" !&6' $'(')&' +')&,&@?' ,&C1 ,&(6' 12#''
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E, '' #,' 5,#!&++6' '"#' $'?' +12&, #,' #,' #")&,' #1," #,' R1, +(!" #'' ' $'?'
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#4&,' $'(' $@#4&' ")&' 1%' "#' *) !)' +1!)' 5&'$-"?' +)$--' @&' % " .$"&(6' '
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8&'($'"6' #,' 8' ")&' 5-$ '" 88' +)$--' @&!#%&' #'+1 "6' #,' +)$--' (+!#'" '1&'
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V#]' .' #4' #G 3 ' D#5 6 # D&H7 I E FD' +/ F 7D4D' .' 2#] #4 I C # HD/32 # (#G 3 #E

R ' '(' @& '' 81,")&,' &'$!"&(6)$'' (1, ' .' ")& #'" '1$'!& #8 ")& 7 (' 5, 4 -&.&6 '# #(? 5#- " !' #,' #,2#,$"&6 $' (' '# #! &"? #,' #%B >$'?6 #,' 5&,+#'+ 1' "&(' #,' "# @& 1' "&(' '' #4&'$'"+ #,' 5$,"'&,+) 2+6 +!&&(' .' 9 2&,+#'+6 +)$--' %$:& #,' ++1& '' . ' #,' * ") '' - 9"?B8 4& -&+ ")&,&#86 $'? --' #8 9!)$' .& #,' 5,#% ++#,? #"&6 ,' ' .$. &%&'' 8#,' ")& 5$?%&'' #8 #'&? #'' 3&%$' (6 #,' 12#'' *) !)' $'? 5&,+#'')#-(' .' ")& +$%& %$? #@"$ '' 5$?%&'' #'' 3&%$' (']
5,#4 (&(' $- * $?+6 ")$'' '#") ' .')&,& '' #,' '' ")& +$ (' ,&! "&(' !'' #8 ")& &4&'")' &$,' #8 "- & & . '' #8 + -$"& $>&+"? D ' .' ' ")& 8#1,")' !#'"$ '&(' +)$--' @& !#'+",1&(' "# 2,&4&'' $'? #(? 5#- " !' #,' #,2#,$"&6 #,' $"[? #! &"? #,' #%2$'?6 #,' '!#,2#,$"&(' #%2$'? #,' #,2#,$" #'6 #,' #872$,"'&-+) 26 !$,,? ' .' #'' $' (' ",$'+$!" ' .' $' : ' .' 1+ '&++ $'' $'? . ,&$"&,' 3 +"$'!& ")$'' 9"?B8 4& -&+ 8,#% $' (' '#")$4 ' .' $'? #1+& #8 1+ '&++ #,' +"$@- +)%&'' $+ $' :&,+ '' '#8 * ") '' 9"?B8 4& -&+ ")&,&#8 X&9!&2"'' $+)&,& 'B$8"&,' '&'" #'&(6["#B %$:& $' (' ++1& ")& ,' --+ $' (' #"&+6 2$?$@-& #'' 3&%$' (' #,' #")&, * +&6 $'' ")& 5-$!& $'' *) !)' ")& +$%& +)$-- @& ++1&(6 @& ' .' %#,& ")$'' 9"?B8 4& -&+ 8,#% ' $' (' $-+# '' (' (' "#)$4& $'' .&8'' #,' .&'"+ '' ' #,' $'' $'? #")&,' 5-$!& '' *) !)' +1!)' --+ #,' #"&+ +)$-- @& %$(& 2$?$@-& 8#,' ")& 51,2#+& @8 5$?%&'' #'-?6 @1'' '# +1!)' -- #,' #"& +)$-- @& 8#,' $'? 1%' -&++ 8 $'' 4& 5#1'(+6 #,' @& ,&B ++1&(' '' ' #,' * ") '' 9"?B8 4& -&+ ")&,&#8A

#6 (0^ C2#6 /' +2/3^ #D/E" C C 26 H2//6 # I E #D EE .' 2#] #4 # #G #! ' Z 3" # TV B 7DE3"D/D .! I C # 37 D D/ OE "D/D # O D#3 #DG

' (' *)&,&$+ ")& '"&'" #'' #8 ") + !'' +6 ")$'' ")& H#4&, '#,' '(' #%2$'? #8 ")& $' :' #8 . ' +)#1-(6 (1, ' .' ")& 5&, #(' "$"&(' '' ") + !'' X+1@>&!'' '&4&,")&-&++ "# +1!)' &(&%2" #'' $+ + (&+!, @&(' '' ") + !"[6 !#'" '1& "#)#-(' $' (' &'>#? $-' ")& &9!-1+ 4& 5, 4 -&.&+ #8 $' : ' .' 4&'' @? ")& +$ (' ,&! "&(' !'' #8 ")&) ,"?B - '")' $' (' #,"&)' &$,' #8 ")& & . '' #8 + $>&+"? D ' .' ' ")&) ,(' $' (' $8#,&+$ (6 $+ ,&.1-$"&(' @? ")& +$ (' ;&! "&(' !'' #8 ")& &4&'")' &$, #8 + :"& $>&+"? D ' .' ")& #1,")6 #,' $'? ▮, #,' #,' +1@+&C1&'' !'' #,' !"+ #8 5$,- $%&'"6 @1'' '# #")&,' #,' ,")&,' &9!-1+ 4& 5, 4 -&.& #8 $' : ' .] '(' *)&,&$+ 3#1@"+)$4& $, +&'

$, +&' $+ "# ")& #'+",1!" #' #8 ")& +$ (!"+6 $'($+ "# ")& 9"&'' #8 1!) &9!-1+ 4& 5, 4 -&.& $'(+ &92&(&'' ")$" $-- +1!) 3#1@"+ +)#1-( )& ,&%#4&(6 @& ")&,&8#,& (&!-$,&($'(&'$!"&( )$" $'? #(? 5#- " ! #, #,2#,$"&6 #, #! &"?6 #, #%2$'?6 #, 5$,"'&,+) 26 $-")#1.) !#'+ +" '. #8 %#,& ")$' 9 5&,+#'+6 %$? !$,,? #'")& ,$(& #, 1+ '&++ #8 $': '. ' #, * ") ' 9"?B8 4& -&+ ")&,&#86 2,#4 (&(")$"+1!) #(? 5#- " ! #, #,2#,$"&6 #, #! &"?6 #, #%2$'?6 #, 5$,"'&,+) 2 (# '#" @#,,#*6 #*&6 #, "$:& 12 ' . $'? 1%6 #, 1"'+ #8 #'&? #' ")& , --+ #, #"&+ 2$?$@-& #' 3&%$'(6 #, $"$'? -&++ %& ")$' 9 #'")+ 8,#%6 ")& @#,,#* '. ")&,&#86 (1, '. ")& #'" '1$'!& #8 ")& 5, 4 -&.&+ .,$'"&(@? ") +B !" "# ")& +$ (H#4&,'#, $'(#%2$'? #8 ")&B $': #8 .

<6 5,#4 (&($-*$?+6 $'(@& " 81,")&, &'$!"&(6)$" 8,#% $'($8"&, ")& ,+" 3$? #8 & ! ")#1+$'(& .)")1'(,&($'(") ,"?B 8#1, $-- 5,#% ++#,? #"&+ 2$?$@-& #' 3&%$'(#8 ")& H#4&,'#, $'(#%2$'? #8 ")& $': #8 . *) !) +)$-- @& ++1&($" $'? 5-$!& ' ")$" 5$," #8 ")& V' "&(D '.(#% !$--&(. #1" *)&,& ")& ,$(& $'(1+ '&++ #8 $': '. +)$-- @& !$,, &(#' 8#, $'(#' @&)$-8 #8 ")& +$ (H#4&,'#, $'(#%2$'? #8 ")& $': # . +)$-- @& %$(& 2$?$@-& $" ")& 5-$!& *)&,& +1!) 5,#% ++#,? #"&+ +)$--6 @& ++1&($'(+)$-- '#" @& -$*81- 8#, ")& +$ (H#4&,'#, $'(#%2$'?6 #, $'? #%% ""&&6 .&'"6 $+) &,6 88 !&,6 #, &,4$'" #8 ")& +$ (H#4&,'#, $'(#%2$'?6 "# ++1&6 $" $'? +1!) 5-$!& #1" #8 $'? 5,#% ++#,? #"& 2$?$@-& #' 3&%$'(*) !) +)$-- '#" @& %$(& 2$?$@-& $" ")& 5-$!& *)&,& ")& +$%& +)$-- @& ++1&(6 $'? ") '. ' ")& +$ (B ,&! "&(!" #8 ")& &4&'") &$, $8#,&+$ ("# ")& !#'",$,? '#"* ")+"$'('.

77) 3DE . 3"D 2#] . #472#G C262O7D # *D O 2#G Z" H" E"277 5D EEIDG I3 . #G # E"277 OD C26^ 2O7D 23 3"D +72HD Z"D/D EEIDG! H

< '(@& " 81,")&, &'$!"&( )$" 12#' '& ;&$,;+ #" !& . 4&' *") ' 9 #'")+ $8"&, ")& 92 ,$" #' #8 &' &$,+ 8,#% ")& ,+" 3$? #8 * ! ")#1+$'(& .)")1'(,&($'(") ,"?B8#1,6 $'(12#' &2$?%&'" @? 5$,- $%&'" "# ")& +$ (H#4&,'#, $'(#%2$'?6 #, ")& , 1!!&++#,+6 #8 $-- 5, '! 2$- #'&?6 '"&,&+"6 #, ''1 " &+ *) !) K%$? @& (1& 8,#% ")& 51@- ! "# ")& +$ (H#4&,'#,$'(#%2$'? $" ")& %& #8 ")& 92 ,$" #' #8 +1!) #" !&6 ' - :& $''&, $+ +)&,& 'N $8"&, +" 21-$"&($'(2,#4 (&(6 ' ")& 4&'" #8 +1!) #" !& @& '. (&8&,,&(1'" - $8"&, ")& ,+" 3$? #8 '& ")#1+$'(& .)")1'(,&($'(8 8"?B8 4&6 ")& +$ (&9!-1+ 4& 5, 4 -&.&+ #8 $': '. .,$'"&(@? ") + !" +)$-- !&$+& $'((&"&,% '& $" ")& 92 ,$" #' #8 +1!) &$,;+ #" !& $'($'? <#"& #, &+#-1" #' #8 ")& #1+& #8 #%%#'+6 + .' 8 &(@? ")& 2&$:&, #8 ")& +$ (#1+& ' E, " '.6 $'((&- 4&,&($" ")& 51@- ! 88 !& #8 ")& +$ (H#4&,'#, $'(#%2$'?6 #, ")& , 1!!&++#,+6 +)$-- @& (&&%&($'($(>1(.&("# @& $ +188 ! &'" #" !&

&H7IE FD +/ F 7D4DE "D/DO6 4 FD# 3 D#G IC # '#D -D2/Æ) 3 HD 4 FD# 23 3"D #G . D# -D2/E 2.3D/ I4IE3 Q

@"23 E"277 OD GDD O DG EI.. H D#3) 3 HD

< '(@& " 81,")&, &'$!"&( )$" 8,#% $'($8"&, ")& ,+" 3$? #8 '& ")#1+$'(& .)")1'(,&($'(") ,"?B8#1,6 1'-&++ $'(1'" - 5$,- $%&'" +)$-- #")&,* +& (,&!"6 $ &'(&, #8 $ #"& #, #"&+ #8 ")& H#4&,'#, $'(#%2$'? #8 ")& $': #8 . &92,&++&("# @& 2$?$@-& "# &$,&, #' 3&%$'(6 +)$-- @& $ -&.$- &'(&,6 "# ")& %#1'" &92,&++&(+1!) #"& #, #"&+6 $'(+)$-- @& "$:&' @& 4$- ($+ $ &'(&, "# +1!) %#1'" 8#, $-- 1%+ $@#4& 4& 5#1'(+ #' $--

2#]) 3DE 3 OD 2 7D427 $A7':P'(7 /2#H" 2#]E!

$-- !!$+ #'+ #' *) !) $'? &C(&, #8 #'&? %$? @& -&.$--? %$(&6
+# -#'. $+ ")& $':#8 . +)$-- !#'" '1& "# 2$? #' 3&%$'(
")&, +$ (#"&+ '-&.$- # ' ' 5,#4 (&($-*$?+6 ")$" '# +1!) #"& #,
#"&+ +)$-- @& (&&%&($ -&.$- &'(&, #8 5$?%&'" @? ")& H#4&,'#,
$'(#%2$'? #8 ")& $':#8 #, $'? ,$'!) $':#8 ")&
+$ (H#4&,'#, $'(#%2$'? @1" ")& +$ (H#4&,'#, $'(#%2$'?
$,& '#" "# @&!#%& - $@-& #, @& ,&C1 ,&("# 2$? $'6(+$" +8?6 $" $'?
,$'!) $':#8 ")& +$ (H#4&,'#,6 $'(#%2$'?6 $'? #"& #, #"&+
#8 ")& +$ (H#4&,'#, $'(#%2$'? '#" %$(& +2&! $--? 2$?$@-& $"
+1!) ,$'!) $': @1" ")& +$ (H#4&,'#, $'(#%2$'? +)$-- @&
- $@-& "# 2$? $'(+$" +8? $" ")& $': #. $-- #"&+
#8 ")& +$ (H#4&,'#, #8 $'? ,$'!) ")&,&#8

77E - 3 < '(@& " 81,")&, &'$!"&( )$" '# -- #8 9!)$'.& #, 5,#B
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#'"8+ "#7 ")&,&#86 #, ""#")$4 '. %#,& ")$"),&& #'")+ "# ,1'6 +)$--6 @?
/I/I 3 E I O #8 $'? '"&,&+" "$:&' ")&,&#' #, +&!1,&(")&,&@?6 #, $'?
i&!" 3 EI/6 .,&&%&' "# 2$? #, ,&!& 4& #, $--#*B '"&,&+" (+!#1'" '.6 '&.#B
$*+ ; ! $" '.6 #, ",$'+8&,, '. ")& +$%&6 @& 4# (6 '#, +)$-- ")& $@ - "? #8
$'? 5$,"? "# $'? -- #8 9!)$'.& #, 5,#% ++#,? #"& @& $88&!"&(
@? ,&$+#' #8 $'? "$"1"& #, $* 8#,!& 8#, ")& 5,&4&'" #' #8 V+1,?6
'#, +)$-- $'? 5&,+#' #, 5&,+#'+ (,$* '.6 $!!&2" '.6 '(#,+ '.6 #,
+ . ' '. $'? +1!) -- #, #"&6 #, -&'('. #, $(4$'! '. $'? #'&?6
P#, "$: '. %#,& ")$" "- & 2,&+&' $"& #8 -&.$- '"&,&+" '
b($'(,&+2&!" 4&-? 8#, ")& #$' #8 #'&? #' $'? +1!)
-- #, #"&6 @& +1@>&!" "# $'? 5&'$-" &+ 1'(&, $'? "$"1"& #, $*
,&-$" '. "# V+1,?6 #, $'? #")&, 5&'$-"? #, #,8& "1,& $'? ") '.
' $'? $* #, "$"1"& ,&-$" ' . " V+1,? $'? 5$," #8 ")& V' "&(
D '.(#% "# ")& !#'",$,? '#"* ")+"$'('.

HH I#3E . < '(@& " 81,")&, &'$!"&( )$" $' !!#1' #8 ")& %#1'
I77 #! H #8 1-- #' $'(&!1, "&+ ' ")& $':#8 F$'(@&-#'. '. "# ")& +$ (
2#G .) 3DE H#4&,'#, $'(#%2$'?6 $'(#8 #"&+ ' ,!1-$" #'6 $'(#8 3&2#+ "+
(/HI72^ ")& +$ ($':6 +)$-- @&",$'+% ""&(E&&:-? "# ")&)$'!&--#, #8 ")&
3 # 3 OD 9!)&C1&, 8#, ")& %& @& '.6 $'(+1!) !!#1'"+ +)$-- @& !#'+#- N
ED#3 ZDD]76 ($"&($" ")& '(#8 &4&,? #'")6 $'($' $4&,$.& "$"& #8 ")& $':
3 3"D ("2I. !!#1'"+ #8")& 2,&!&('.),&& #'")+6 %$(& 8,#% +1!) !#'+#- ($"&(
/D77 / .3OD !!#1'"+ $+ $8#,&+$ ( )$-- @& 21@-+)&(&4&,? #'") ' ")& '&9
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+IO7 H 3 2$? '(@ " 81,")&, &'$!"&(6 R $" '& #1,") 5$," #8 ")& 3&@"
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8","#,")&7 5#1'(+6 E(1 8,#88 "- ! 51@- ! "# ")& H#4&,'#, $'(#%2$'?
37@7#" $':#8 . +@$-- $'(%$? @& ,&2$ ("# "@& +$ (H#4&,'#,
-Q6 X6 XR# $'(#%2$'?

2"$" @& " 81,")&, &'$!"&( )$" $ H&'&,$- #1," #8 5,#B
E3 H] .3"D 2, &"#,+ #8 ")& +$ (H#4&,'#, $'(#%2$'? #8 "- & $':#8 .
2#] O26 +)$-- @&)&-($" +#%& %& @&"*&& ")& 2$++ '. #8 ") + ! $'(")&
OD /DGIHDG 8") 3$? #8 ! " '&")#1+$'(& .)")1'(,&($'(" ,"?B8#1,6 "#
(&"&,% '& 12#' ")& 5,#2, &"? #8(4 ('.$'($22,#2, $" '. ")& 1% #8
),&& % -- #' + 9)1'(,&(" ,"?B& .)" ")#1+$'("*#)1'(,&($'(8 8"?
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5&,+#'+6 #(&+B5#- " !' #,' #,2#,$"&6 *)# %$? @& 5,#2, &"#,+' #8' ")&
$2 "$-' "#!:' #8' ")& +$ (' H#4&,'#,'$'(' #%2$'?' #" ")& +$ (' 8")'
3$?'#8' ! " ' '&' ")#1+$'(' & .)")1'(,&('$'(' ") ,"?B8#1,6 $'(' 12#"
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"#'6 '#" '!#'+ +"&'" * ")' ")& 5,#4 + #'+ 8#,' ")$" 51,2#+&)&,& "
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,$-' #1,"6 +)$-' (&"&,% '&' ")$" " * -' @& 2,#2&,' "# %$:& +1!)' 3 4 + #'6
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8")' 3$?' #8' ! " ' '&' ")#1+$'(' & .)")1'(,&(' $'(' ") ,"?B8#1,'
$'(' ")&,&12#'6 #1" #8' #,' @?' %&$'+' #8' ")& 1%' "# @& ,&2$ (' "# ")&
+$ (' H#4&,'#,'$'(' #%2$'?' $+)&,& 'B@&8#,& %&'" #'&(6 #,' #1" #8' #,'
@?' %&$'+' #8' ")& 1'(' "# @& 2,#4 (&(' 8#,'")$" 51,2#+&6 ")& 1%' #8'
),&& % -- #' + 9)1'(,&('$'(' ") ,"?B& .)" ")#1+$'(' "*#)1'(,&('$'('
8 8"? 5#1'(+' "&,- '.6 #,' +1!)' 5,#2#," #' #8' ")& +$ (' 1'(' $+ +)$-'
,&2,&+&'" ")& +$%&6 +)$-' @& $22,#2, $"&(' $'(' (4 (&(' $%#'.+" ")&
+&4&,$-' 5&,+#'+6 #(&+' 5#- " !' #,' #,2#,$"&6 *)# %$? @& 5,#2, &"#,+'
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+$'(' 5#1'(+' $':' "#!:' #" ")& +$ (' 8")' 3$?' #8' ! " ' '&'
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#8' #,' +)$-')$4& +"$'('.' " ")&,' ,&+2&!" 4& $%#&+' ")& ##:+' :&2"
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' 5,#4 (&(' $-*$?+6 $'(' @& "&'$!"&(')$" ")& &(1!" #' #8' ")&
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H#4&,'#,'$'(' #%2$'?' #8' ")& $':' #8' . '@?' ")& &2$?%&'"
#8' +1!)' '&' #1,")' 5$," ")&,&#86 +)$-' '#" (+C1$- 8?' ")& 2,&+&'"
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#,' $'?' H#4&,'#,6 3&21"?' H#4&,'#,6 #,' 3 ,&!"#,' *)# %$?' @& !)#+&'
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$" $'?' %&' @&8#,& ")& H&'&,$-' #1," #8' ")& +$ (' H#4&,'#,'$'('
#%2$'?' "# @&)&-(' @&"*&&' ")& *&'"?B8 8")' 3$?' #8' $'(' ")&
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+)$-' @& !$2$@-& #8' @& '.' !)#+&' +1!)' H#4&,'#,6 3&21"?' H#4&,'#,6
#,' 3 ,&!"#,6 #,' +)$-' !#'" '1&') '#,'")& ,&+2&!" 4& 88 !&+6 1'-&++')&
#,' ")&?' ,&+2&!" 4&-?' +)$-' $" ")& %& #8' +1!)')# !&)$4&6 $'(' (1, '.'
+1!)') ' ,&+2&!" 4& 88 !& !#'" '1& "#)$4&6 ') ' $'(' ")& ,&+2&!" 4&
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